ASBESTOS ABATEMENT PROJECT DESIGN
STRUCTURALLY UNSOUND BUILDINGS
OPEN AIR ABATEMENT AND DEMOLITION

STONEHOUSE FARMS COMMERCE CITY, COLORADO

April 16, 2013

Prepared For:

City and County of Denver
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Colorado Department of Public Health and Environment

Prepared By:

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1735 Lafayette Street
Denver, Colorado 80218
# Site Specific Work Plan

Stone House Farms, Commerce City, Colorado

April 16, 2013

<table>
<thead>
<tr>
<th>Site Location: Commerce City, Colorado</th>
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<td>Asbestos Project Designer and Asbestos Project Manager Samuel Rolf #921</td>
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<td><strong>Demolition Contractor:</strong> Name and Address</td>
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<td><strong>Air Monitoring Specialist:</strong> Name and Address</td>
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SECTION A: Project History & Overview

Project History

SJR Environmental Consulting (SJRE) was contacted by URS Corp to create an asbestos project design for the City and County of Denver asbestos abatement project at Stone House Farms in Brighton, Colorado. The project site is a list of forty three (43) damaged and abandoned small acreage farm houses, including all associated out buildings on each of the properties. In 2007, Landmark Environmental conducted an Asbestos Survey of the forty three properties and reported that twenty (20) of the farm houses contain friable asbestos containing surfacing material (SM), thirteen (13) farm houses contain friable sheet vinyl (SV), and ten (10) farm houses have non friable asbestos containing material (ACM). SJRE reviewed the asbestos survey and conducted on-site inspections on August 10, 2012 and on November 28, 2012.

Project Overview

The scope of this project will consist of Open Air Abatement and Demolition of 20 structurally unsound farm houses that contain friable ACM.

Many of the buildings are heavily damaged and are unsafe to enter. These farm houses have been sitting for more than four years and have been vandalized.

See attached photos in Section D to support this request.

The City and County of Denver intends to demolish and remove these 20 farm houses and have the contractor follow the work practice as described in the CDPHE “Structurally Unsound Building Variance Request Checklist.”

The structures range from single story to two story single family residences. Most of the buildings were built in the 1950’s to 1970’s. The individual structures will be fenced off and secured. A Map of this site is in Section E.
The Asbestos Abatement Contractor must comply with Colorado Regulation #8 and all applicable Federal, and local regulations.

The contractor will submit this project design as an attachment to a Regulation No. 8, Part B Variance Request Form for each property listed in Section C of this project design. The contractor will request a variance from the requirements of the following Sections of Regulation No. 8 and cite the specific section numbers listed below:

Section III.J. Air Cleaning and Negative Pressure Requirements (Page 39).
Section III.N. Containment Components (Page 42).
Section III.P. Clearing Abatement Projects (Page 46).

On the Variance Request Form the Contractor will also state: See Attached Variance Request/Work Plan.

Section B of this project design describes the proposed alternative procedures for each particular project. It explains in detail why these Sections of the regulation are “not practical and feasible” for this project and also explains how the alternative procedures will provide equivalent control of asbestos.

Site photos are in Section D.

SECTION B: Open Air Abatement Project Design

Overview

All of the 43 farm houses have been heavily damaged. The contractor is responsible to visit this site and note the current conditions of each of the 20 properties that contain friable ACM prior to asbestos abatement activities.

Some of the homes are in deteriorating condition and asbestos containing materials are in a significantly damaged state.

Project Design for Open Air Abatement Work

SITE PREPARATION AND PERSONNEL

The Stone House Farms area has not been fenced off from the general public, with access only being granted to approved and trained personnel. The property has been trespassed, heavily damaged and vandalized. Debris or building components have spilled over to other areas of the properties.

The contractor shall be the licensed general abatement contractor (GAC) to complete the abatement and demolition work. All personnel involved in the project will have valid state certifications in regards to asbestos abatement and demolition. This will apply to all workers,
equipment operators, air monitoring specialists (AMSs), asbestos building inspectors (ABI) and asbestos Project Designers/Managers. The equipment operator will have, at a minimum, a Colorado workers certification.

Copies of all applicable certifications will be available onsite at all times. Copies of medical evaluations and respiratory fit tests will also be onsite throughout the duration of the project.

Prior to the demolition, the contractor will arrange to have a representative of CDPHE to be on-site and inspect the set up before the start of any abatement activities.

Each farm house area will be fenced. Entry to the site will be limited to approved and trained personnel only. A lockable gate will be used to limit access to the site and work area. A sign in/sign out log will also be used to monitor onsite personnel. A mobile three stage decontamination unit (Decon) will allow workers to clean off after exiting the work area. It will also be used for entry into the work area. This Decon will be located next to the fence of the abatement area. A negative air machine will be attached to the decon, on the dirty side, and will run when the decon is in use. A separate area will be set up in order to load in and clean off all pieces of equipment and tools.

Proper Personal Protective Equipment (PPE) will be worn by all workers at all times during the project. The PPE will include respirators, disposable clothing, steel-toe boots, gloves, hard hats and glasses. Additional PPE, such as fall protection, may also be used during the project.

All tools and equipment used during the project will be properly stored and cleaned before the project is completed. Once the project is complete, small tools and equipment will be cleaned and double bagged in 6 mil poly bags before being loaded into a poly lined equipment truck. Any large pieces of equipment, including track-loader, will be hosed down and thoroughly cleaned after use. The waste water will be collected in a rubber-lined basin and filtered down to five microns. In addition, all large equipment will be wiped down to be free of dust or debris. The onsite AMS/ABI will ensure that all large equipment is clean.

A poly lined berm will be constructed to catch any excess water runoff from the site. The berm will be a minimum height of one foot high, but can be higher in areas that have an increased chance of runoff (high slope angles, driveways and walkways). The berm will be constructed by using onsite soil and will follow the natural contours of the site. The excavator that will be used for demolition activities will be used to construct the berm. The berm will be thoroughly inspected at the start and end of every work day. In addition, the berm will be visually inspected hourly by the demolition supervisor. After the project, the berm will be disposed of as asbestos containing.

Increased barricades will be implemented to ensure that no debris can spill over into any adjacent properties or public areas. This will be done by installing wind barriers along the fencing that is already in place. These wind barriers will consist of a layer of mesh screening attached to the fencing. The mesh screening will be installed to match the current height of the fence (approx. 6 ft.). These increased wind barriers will also act to ensure that no debris spills over into any other areas of public access or private property.
As of now, all utilities have been shut off to the property, and will remain so throughout the course of the project. Power will be provided to the site via an onsite diesel generator to be supplied by the GAC. Water will also be provided and disposed of properly by the GAC. Note that all water used during abatement/demolition activities must be amended water.

The track loader will stay off debris. There will be no munching or sizing of debris.

**TRANSPORTATION**

Waste trucks will be provided by the GAC and demolition contractor. Waste trucks will be onsite to accommodate the removal of all building materials onsite using the new standard for truck lining. All trucks will first be poly-lined with one poly slip layer, layer of 10 mil poly, and two layers of six-mil poly. The truck will be then filled with waste/debris by the track-loader. Once filled, it will be properly sealed. The two six mil poly layers and the 10 mil layer will individually be overlapped over the top of the debris and sealed with tape and glue. The outside layer (10mil) will be mechanically fastened by interlocking the poly with 2x2 lumber and then screwing another 2x2 piece of lumber along the seam and ends. A generator label will be attached to each properly sealed truck load prior to leaving site. All waste loading and sealing activities will be inspected by the onsite AMS/ABI before being removed from the site. A poly-lined staging area shall be setup in the work area to accommodate the loading of the waste trucks. An approved asbestos waste disposal site shall be selected prior to the start of the project by the GAC. Truck drivers will remain inside the cab with the windows closed during loading operations.

Unloading at the landfill will be done according to the proper and best procedures according to the landfill. Precautions will be taken to ensure that a breach or spill of the burrito bag contents does not occur while unloading the ACWM. This will involve unloading the waste in a slow and non-destructive manner. In addition, the use of heavy equipment to move or compress the waste should be limited.

Each driver will call the onsite AMS to let them know that the load was unloaded successfully.

Since the work area is already considered a major asbestos spill, any debris that spills while loading the trucks will be recollected by the track-loader and placed in the burrito bag.

If an asbestos spill occurs onsite while being transported to the landfill, spill actions will be implemented. These actions will include stopping work, restricting the area, placing asbestos spill signs in the area, placing the area under negative pressure (if applicable), HEPA vacuuming and wet-wiping the area, properly disposing of the waste and final air sampling. In any case, minor or major, if a spill occurs, all work will stop and the CDPHE will be notified.

In the unlikely event of a breach of a burrito bag, or if any ACM is found on the exterior of the trucks while being transported to a landfill, all transportation and work actions will stop and proper spill response actions will take place, depending on the size and extent of the spill. Any
spill will be treated as a major spill, regardless of quantity. CDPHE will be contacted if such an issue should arise in order to better coordinate and implement proper spill response procedures.

Also the driver must call 911, and the onsite Project Designer, to report any spill during transportation.

**REMOVAL OF CONTAMINATED DEBRIS**

The abatement and demolition process will begin once there is approval from CDPHE and the GAC obtains a demolition permit from CDPHE and Adams County. All debris that will be demolished will be pre-wetted for a period of no less than 45 minutes by the use of low pressure hoses set to “mist”. Following this, demolition activities will begin.

All demolition and removal activities will be done using mechanical methods. These activities will not be done by hand or other methods. Mechanical methods will include the use of a track-loader to tear down the building. The track-loader will pick up the debris and place it into the lined trucks. Any larger pieces of equipment (track-loader) used during the demolition will remain inside the fenced area until the end of the project. After the project, all large pieces of equipment will be taken on to a poly pad and cleaned prior to leaving the work area.

During the demolition process, wetting methods will be used to control the release of airborne asbestos fibers. Amended water will be adequately mixed prior to application. All materials to be impacted will be pre-wetted through the use of a low-pressure hose set on “mist”. A mister unit will be attached to the track-loader at the point of impact (where the track-loader contacts the building materials). Additional hoses will be onsite to keep debris piles wetted. These additional hoses will also be set to “mist” in order to limit the disturbance of the ACM. All debris piles will have poly lining placed beneath them to capture any excess water. All water being used for demolition activities will be amended water containing industrial/commercial grade surfactants.

All precautions will be taken to limit the possibility of rendering the ACM friable during the demolition process. This will include pre-wetting the materials as described in the above sections. Since, the Buildings are considered a total loss, all building materials will be removed from the site and disposed of accordingly. No building materials will be recycled or reused. An additional 2” of soil in the work area proximity will be removed and visibly inspected by the onsite AMS/ABI.

**WORK PRACTICE CHANGES**

Any work practice changes must first be approved by CDPHE before work begins. All work practice changes must be approved of by the project supervisor, the onsite PD, AMS/ABI and the CDPHE. The project supervisor, onsite AMS/ABI or CDPHE representative may require further engineering controls, such as local exhaust ventilation or increased wet methods, if they feel the need to do so. In addition, extra safety precautions will be taken, due to the structural
integrity of the buildings. Changes may be made day-to-day at the request of the onsite AMS/ABI, project supervisor, PD, or CDPHE representative.

In the unlikely event that the Maximum Allowable Asbestos Level (MAAL) is exceeded, further engineering controls, such as local exhaust ventilation or increased wet methods may be implemented, to limit the chance of the MAAL being exceeded again. Please see the Air Monitoring and Visual Inspection section for further details about the air monitoring fiber release procedures which will take place.

**DISPOSAL**

The approved disposal site for this project is the Denver Arapahoe Disposal Site (DADS). All pieces of debris will be wetted and placed in the poly-lined trucks as described above.

**WIND**

Wind speed monitoring will be done throughout the project by the onsite AMS. All wind speed measurements will be taken outside of the work area, but in a close proximity to the area of work currently being done. A log of all wind speeds will be kept by the AMS. The onsite AMS/ABI has the right to stop work when any one of the following conditions is exceeded:

- Any wind gusts reaching or exceeding 20 mph.
- Sustained wind speeds reaching or exceeding 12 mph over a 10 minute period.
- Winds that interfere with the ability for the engineering controls to work as designed.
- Winds producing visible emissions or creating movement of dust or debris near the work area.

During a wind-related work stoppage, other non-removal activities may continue to take place. Following the work stoppage, removal activities may resume only after all four of the following conditions have been met:

- All wind gust readings for a 20 minute period are below 20 mph.
- All sustained winds for a period of 20 minutes are below an average of 12 mph.
- All winds do not produce visible emissions or create movement among dust or debris.
- All winds do not interfere with the design and effectiveness of the engineering controls.

**AIR MONITORING AND VISUAL INSPECTION**

The owner’s representative will provide oversight and will be responsible for all onsite wind speed and air monitoring. Area air samples will be collected at points which would pose a significant chance to exceed the Maximum Allowable Asbestos Level (MAAL). These areas will include the waste load-out area, occupied adjacent properties and the waste truck staging/loading area. In addition, air samples will be collected on all four sides of the property including inside
the fenced area. A minimum of eight (8) area samples will be collected as close to the work activities as possible per shift and will be analyzed within four (4) hours, either onsite or by an accredited laboratory. All area samples will be collected by PCM methods. The two highest daily PCM samples will be analyzed by TEM presence/absence (P/A) each shift. In addition, any sample exceeding the MAAL will be analyzed by TEM P/A analysis by an accredited laboratory. All area air sample results will be available daily and will be kept throughout the duration of the project by the onsite AMS. Each day of daily air monitoring data will be sent via email to CDPHE.

In addition, Point of Source (POS) samples will be collected by the onsite AMS/ABI. These POS samples will be personal samples fitted to all Asbestos Workers on the project, in order to ascertain if there is a danger of elevated asbestos fibers in the air. These samples will run throughout the duration of the work day, excluding breaks. Results will also be made available daily and will be kept throughout the duration of the project by the onsite AMS.

Finally, the GAC will be responsible for all OSHA personal monitoring. The CDPHE has required that a minimum of 25% of the workforce have personal samples. All personal monitoring results must be available before the start of the next day’s shift.

As outlined above, all area air samples shall be analyzed using PCM methods. If any initial area samples are found to exceed the MAAL, the sample may be reanalyzed by TEM P/A method to determine if the MAAL was exceeded or not. In the case that the MAAL is exceeded, all work must stop and the CDPHE will be notified. Additional engineering controls may need to be put into place if the MAAL is ever exceeded.

At the conclusion of the abatement and demolition portion of the project, the contracted consultant will have its AMS/ABI conduct a thorough visual inspection of the property. The area will be free of any visible dust or debris. All building materials must be removed and disposed of properly. All waste shall be removed from the worksite and all equipment will be inspected to ensure that it has been properly cleaned prior to being removed offsite. All heavy equipment will be inspected and cleared by the onsite AMS/ABI.

CONCLUSION

SJRE, URS, DIA and the City and County of Denver appreciate CDPHE’s consideration for this variance request. If you have any questions or require further information regarding this project, please Greg Holt, Director of Transportation System, Commercial Division at 303-342-2976 or via email at GregHolt@FlyDenver.com.

Work Area - General Requirements

Post warning signs and warning tape meeting the requirements of OSHA 29 CFR 1910.1001 (j) (1) and 29 CFR 1926.1101 (k)(6) to demarcate the regulated area or other approaches where airborne fiber concentrations may be reasonably expected to exceed ambient background levels. Signs and warning tape shall be posted at a distance sufficiently far enough away from the regulated area to
permit an employee or others to read the sign and take the necessary protective measures to avoid exposure.

Respiratory and Site Specific Health and Safety Plan:

The Contractor will maintain on site, Site Specific Health and Safety and Respiratory Protection plans, which shall be available for review and accessible to workers. This Site Specific Health and Safety Plan will be modified on a per home site basis by conducting a home specific Job Hazard Analysis (JHA) to comply with specific hazards under OSHA, at each Home Site. JHAs will be maintained on site and adjusted, as required, to changing site conditions and identified hazards. In addition to Work Area Required PPE, Respirators and Protective Clothing may be required, as determined by air monitoring or task specific requirements. The Contractor will require Steel toe/Steel Shank shoes, Safety Protective Eye Wear, cut resistant gloves and hard hats to be worn by workers in active abatement and demolition areas, and any other protective equipment required by OSHA and/or the Contractor’s own Site Specific Health and Safety Plan. The Contractor shall protect at this job site: holes or potential fall areas, and uncovered pits, to include, but not limited to: decks, broken windows, uncovered window wells and glass, before taking on work site specific health and safety plan for their workers. The Contractor will immediately report to the owner’s representative any newly encountered safety concerns that may impact the safety of on-site personnel.

DIA will provide signed manifests to the contractor prior to the work commences. The Contractor will provide one of the generator copies of the manifest to DIA.

The Contractor shall provide 24 hour security to ensure that each site with open air abatement/demolition activities is wet down every hour. The Contractor is also responsible to ensure potable water is available and haul this water from an off-site location. Water shall be hauled to the site in a fully contained water truck or enclosed container.
SECTION C: Project Estimated Quantities

These are estimated quantities of ACM in each of the properties listed above and the contractor will need to field verify actual quantities of each complete farm house.
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<th>Non-Friable</th>
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<th>SMC</th>
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20 Total

SM Surfacing Material  Note all RM is assumed
SV Sheet Vinyl  Note SM OS is not included
OS Overspray  Note that some SV is milled

Note that quantities are estimated and must be field verified.
**Project Designer Statement**

This work plan will be located at the project site and will be a working document until the completion of all asbestos abatement and demolition activities.

Samuel Rolf  
Asbestos Project Designer #921  
SJR Environmental Consulting  
1735 Lafayette St  
Denver, Colorado 80218
City and County of Denver  
State of Colorado  

City and County of Denver  
Department of Aviation  

Contract Documents  
For  

Former Stapleton International Airport  

Stone House Farms  
Demolition Project and  
Asbestos Abatement  

April 22, 2013  

URS Corporation, Inc.
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APPENDICES

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1.1 GENERAL SUMMARY OF THE WORK:

A. General

1. This project includes the following:

   a) Mobilization,
   b) General Conditions,
   c) The contractor shall obtain all required permits from CDPHE and Adams County,
   d) Maintain dust control throughout the project,
   e) Abatement of friable sheet vinyl component removal from thirteen (13) houses,
   f) Demolition, removal, and recycling/disposal of thirteen (13) houses (after removal of ACM as noted in e) and septic tanks, (see the Sheet Vinyl Project Design-see attachment
   g) Demolition, removal, and disposal of twenty (20) friable ACM-contaminated houses and 1 detached non-ACM garage), (see the Open Air Project Design- see attachment
   h) Clean out and dispose of material from 33 septic tanks,
   i) Deliver and stockpile backfill soil from the DIA stockpile if present supply is depleted.
   j) Demolish, segregate, and stockpile concrete from driveways, foundations, footings, slabs, septic tanks into clean and contaminated stockpiles, *
   k) Load, transport and dispose of contaminated concrete at DADS landfill,
   l) Load, transport and dispose of clean concrete at DIA Queens Bridge facility,
   m) Separate, load, and transport brick and block (Leeds compliant) on lots for recycling at the DADS facility,
   n) Backfill and compact excavated basements in 33 homes and septic tank areas,
   o) Demobilization,
   p) Seed and mulch 43 backfilled basements and septic tank areas (average of 2,500 square feet/ lot),
   q) Closeout Report

*Note: It has been determined that foundation walls may be covered with waterproofing mastic contains ACM and will require disposal as construction debris rather than recycling. These foundations will be determined at the time of demolition and stockpiled accordingly.

2. The above listed components throughout the Contract Documents will be referred to as the Stone House Farms Demolition Package. The demolition package consists of the buildings and additional items listed above and all additions, expansions, renovations, precast concrete
structures such as manholes and vaults, septic tanks, and paving at the buildings location. The demolition package shall be to the limits shown on the drawings.

3. The buildings typically consist of typical home construction material including wood framing, masonry facades, metal and shake roofs, concrete basements and footings, and concrete/asphalt walkways and driveways.

4. The demolition interfaces are not provided for this project. Except where otherwise noted, all demolition will terminate at the demolition interface indicated on the Contract Drawings.

5. The drawings and exhibits provided as a part of this Contract package show overall dimensions and the nature of original or renovated construction. They are provided for Contractor’s information and convenience only. They do not reflect the complete extent, nature and condition of the existing improvements for the buildings, which have had numerous structural, mechanical, utility and electrical additions by successive tenants throughout the years of their respective operations. The contractor’s bid for the demolition of the package shall be based upon their own examination of the existing facilities and a thorough review of the performance requirements established within the Contract Documents.

6. The general demolition includes all grade, ground level, floor slabs and footings, sumps, pavement, vaults, septic tanks, and crawl spaces/utility chases. The contractor is responsible for removal and disposal of building components except for items specifically excluded as indicated in the Contract Documents. The demolition method is based on information contained in the Open Air Project design and the Sheet Vinyl Project design. Open air abatement houses will be demolished entirely using the open air abatement method. The sheet vinyl houses will be abated for all friable ACM, cleared for demolition, and then demolished using industry standard methods.

7. Septic tanks indicated for removal shall be cleaned, backfilled and compacted with materials per these specifications. After removal of underground structures, excavated embankments shall be re-graded to a safe and stable configuration using the soils in the vicinity of the embankment for safety until final backfilling and compaction with imported soils.

8. All underground phone, water, sewer, and gas systems have been disconnected and will remain. Fencing, dead trees, and out buildings in the vicinity of the project work areas have been removed.

B. Quality Control

1. The Contractor shall prepare, maintain and use a written QC System manual for the work performed. The QC System manual shall be submitted to the Project Manager for acceptance prior to the notice to proceed. The QC Manual shall include requirements to ensure the Contractor is using the latest design documents and approved changes. The Contractor shall develop and maintain appropriate records to track utility disconnect points, utilities that are to remain in service, Certificates of Destruction, inspection
records, and appropriate approval signatures for acceptance of the work performed.

2. The Contractor shall provide communication and coordination with adjacent tenants, landowners, utility providers, and contractors on all safety related issues. The Contractor shall not interfere with ongoing tenant operations in adjacent buildings.

C. Asbestos

1. Accessible areas of the project structures have been inspected for Asbestos Containing Materials (ACM). All friable ACM or ACM materials that could be made friable during demolition shall be removed prior to demolition activities or removed as a whole structure demolition, as directed by the Project Documents and Project Manager. There may be ACM present within the building areas that has not been inspected or documented. Friable asbestos or ACM that can be made friable by the demolition operations and all ACM material shall be removed prior to the beginning of any other demolition work within the area. Demolition other than selective demolition of non-load bearing elements to reach ACM will not be allowed without prior approval of the Project Manager. Should the building demolition contractor discover asbestos within the work area, the Project Manager shall be notified immediately for direction. Do not disturb any material until direction is received from the Project Manager. (see the Open Air Project Design and the Sheet Vinyl Project Design) see attachments

D. Hazardous Materials

A chemical sweep will be performed prior to any demolition and the handled as follows:

1. Lights and electrical switches containing mercury as well as light ballasts containing PCBs may be present throughout the building and shall be removed by the contractor. In addition, hydraulic and transformer oils within the building equipment, including the transformers and power regulators, may contain PCB's. The contractor shall test, remove, handle and dispose of these oils and equipment in accordance with all applicable federal, state, and local regulations, as further outlined in the project specifications, Section 02089.

2. Freon based refrigerant may still exist in coolers, HVAC systems, and drinking water fountains. Freon shall be collected and recycled or disposed of in accordance with applicable federal, state, or local regulations prior to demolishing or removing the equipment. Contractor shall provide the Project Manager Certificates of Destruction or recycling from certified vendors within 30 days of the removal of the CFCs.

3. Batteries may be located within exit signs, fire alarm systems, equipment requiring emergency backup power, HVAC controls, and other various pieces of equipment throughout the buildings. Contractor shall investigate, locate, document, remove and
dispose of the batteries in accordance with all applicable federal, state, and local regulations, as further outlined in the project specifications, Section 02089.

4. All soils encountered during demolition that appear to be contaminated shall be removed, handled, and stored as further outlined in the project specifications, Section 02089. The Contractor shall protect its workers and equipment and immediately notify Project Manager for further direction.

5. The contractor shall note that the structures have been out of use for some time and biohazards from animal waste (hair, feathers, scats) as well as molds, fungi, and spores may be present. Contractor shall take all and any precautionary measures required to maintain the health and safety of the work force.

6. The contractor shall drain and decommission all mechanical equipment in the facility prior to demolishing or removing the equipment from the site in conformance with all federal, state and local requirements or regulations.

7. The contractor shall remove all debris, trash, and abandoned materials that are within the project area. If re-usable, these materials may be recycled or sold. If they are to be disposed of, they must be transported to DADS for disposal as demolition debris, as described in these specifications.

Note: The contractor should endeavor to salvage as many boards to be used during the packaging and transport of ACM-contaminated in conjunction with the newest regulations governing packaging requirements.

8. The contractor shall inspect all areas in and around the structures for other containerized hazardous materials. These may include paints, lubricants, cleaners, HVAC chemicals, maintenance materials, radioactive sources, mercury switches, and all other materials, which may not be legally disposed of at DADS. Contractor shall collect all discovered materials into a central staging area and prepare these materials for transportation and disposal at appropriate facilities. Contractor shall submit the final transportation and disposal entities for acceptance by the Project Manager sufficiently in advance of the shipments to allow each entity to be evaluated.

E. Electric Utilities

1. All electric power to the buildings has been disconnected prior to demolition.

2. The contractor shall coordinate with the City to lockout and tagout any and all known power sources to the buildings prior to commencing demolition. The contractor will be responsible for ongoing verification that power lines within the building are inactive.
The contractor shall maintain appropriate safety procedures in the event that live power sources are encountered.

F. Other Utilities

1. Septic tanks, sanitary and storm sewers, water, telephone, gas, and electrical lines have all been disconnected and meters removed from all sites.

2. All utilities shall be disconnected from the building prior to demolition activities unless otherwise specified in the Contract Documents.

3. Tenants surrounding the project area rely upon utilities that are in or adjacent to the Project area. The contractor shall protect and preserve these utilities. Should contractor activities damage any utility that is needed by tenants, the contractor shall immediately repair and restore service, or provide alternative service, at no additional cost to CCOD.

G. Temporary Facilities

1. The contractor shall be responsible for providing power, water, telephone, sanitary facilities, office, trailer space, and any other temporary utility or support during the execution of the work. Public utility connections will not be available on-site. Water is available from a water hydrant located at the corner of 120th and Tower Rd. Water from hydrants in the project area must be obtained from the Denver Water Board.

H. Protection of Remaining Facilities

1. Contractor shall protect the following:
   
a) Telephone, power, water, and gas services to nearby tenants and users.

I. Submittal of Work Plan

1. Prior to Notice To Proceed, the contractor shall submit a Work Plan, for acceptance by the City that details the manner and sequence that will be used to remove hazardous materials, demolish the building structure(s), protect existing facilities to remain, protect workers as well as the public and the environment, support its activities on-site, provide for safe hauling of materials (traffic plan), and all other project performance requirements established within the Contract Documents.

J. Coordination and Interfaces with Ongoing Operations

1. The contractor shall recognize that numerous other activities, contractors, consultants, tenants, and agencies will be working around and adjacent to the work area and that coordination with the City in all aspects of the demolition activities is part of the overall execution of his work and shall be included in the contractor’s bid.
2. This contract requires the demolition of the buildings and concrete areas. The contractor shall provide all necessary permits, traffic controls, protective devices, backfill, paving, and detours necessary to comply with the requirements to protect the traveling public. At no time shall public streets be closed to traffic without alternate detours being in place. At no time shall the contractor block or impede traffic without alternate routes being coordinated with Project Manager and the other site users.

K. Permits

1. The contractor shall secure and pay for all permits necessary to complete the work within the time frames indicated in the Contract Documents.

L. Contractor’s Superintendent

1. The contractor shall maintain a full time superintendent at the site during all hours of operation, including operations of subcontractors. The superintendent shall be a permanent, full-time employee of the General Contractor and not a subcontractor employee. The superintendent shall act solely as a superintendent and not multiple positions.

1.2 RELATED DOCUMENTS:

1. Drawings, General Conditions of the Contract (GCC) as referred to the City and County of Denver’s “Yellow Book“, other General and Supplementary Conditions, Plans and the Specification Sections apply to the Work described within this section.

PART 2 – PRODUCTS

Not Used.

END OF SECTION 01010
SECTION 01025
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SCOPE

This section covers the methods and procedures, which will be used to measure the contractor’s work and to provide payment. The general outline of the principal features of each item as listed does not in any way limit the responsibility of the bidder for thoroughly reviewing the drawings and specifications to understand the intent of the project and to thoroughly investigate the actual conditions of the building demolition or soil remediation to determine the scope of work included in each bid item. Payment to the contractor of the prices stipulated in the bid form will constitute complete compensation for all work shown on the drawings, provided in the specifications or other Contract Documents, and all costs of accepting the general risks, liabilities, and obligations expressed or implied. Payment under all items shall include, but may not necessarily be limited to, compensation for furnishing all supervision, labor, equipment, overhead, profit, materials and services, and performing all work to accomplish and complete the work described in the plans and specifications and determined by the Contractor to be required based on his own review of existing conditions.

1.2 RELATED SECTIONS:

A. General Conditions of the Contract referred to as the City and County of Denver’s “Yellow Book.” (In its entirety).

1.3 METHODS:

A. Lump Sum Items. The quantities of work performed under lump sum items will not be measured except for the purpose of determining reasonable progress payments; and progress payments will be made in accordance with the General Conditions.

B. Unit Price Items. Payments will be made for unit prices in accordance with the measurement methods set forth in this section. The unit prices will apply for all quantities of the items.
1.4 ITEM DESCRIPTIONS:

001. **Mobilization.** This item consists of providing all labor, equipment and materials to mobilize all construction equipment and personnel to the project site and provide the services and installation of facilities as described within the Contract Documents.

   This item will be measured and paid for as a Lump Sum Item.

002. **General Conditions.** This item consists of providing all labor, equipment and materials to provide the initial project submittals, plans, insurance, bonds, and other documents as well as submittals and reports, plans and other documents required throughout the execution of the work, as described in the Contract Documents. Included in this section shall be the costs of the site superintendent, utilities, vehicles, temporary facilities, and project management.

   This item will be measured and paid for as a Lump Sum Item.

003. **Permits.** This item consists of providing all labor, equipment, and materials to provide all required demolition and abatement permits required to perform the work in accordance with all government regulations, based on each task.

   This item will be measured and paid for as a Lump Sum Item.

004. **Dust Control and Maintenance.** This item consists of providing all labor, equipment, and materials to provide dust control and road maintenance on the haul routes from the site to paved roads.

   This item will be measured and paid for as a Lump Sum Item.

005. **Abatement Friable Sheet Vinyl from 13 Houses.** This item consists of providing all labor, equipment and materials to remove sheet vinyl flooring from 13 houses documented in the Project Drawings and Documents.

   Note: Determination of types of material and quantities was made by a certified ACM representative of CCoD who will be onsite and oversee the abatement during this part of the remediation and who will be paid by CCoD. The material will be transported and disposed of in accordance with all regulatory requirements and disposed of at the DADS facility.

   Disposal fees at the Denver Arapahoe Disposal Site (DADS) for ACM materials from the project will be paid directly to DADS by CCoD and are not part of the bid, if handled, transported, and delivered to DADS as required by these specifications. Manifests will be provided by CCoD for this specific material.

   This item will be measured and paid for as a Unit Cost per house.
006. **Demolition, Recycle/Disposal of 13 Houses.** This item consists of providing all labor, equipment, and materials to demolish, remove, and dispose of 13 houses where the friable sheet vinyl flooring ACM has been abated from the house prior to demolition. The work will conform to the Project Drawings and Documents.

Disposal fees at the Denver Arapahoe Disposal Site (DADS) for materials from the project will be paid directly to DADS by CCoD and are not part of the bid, if handled, transported, and delivered to DADS as required by these specifications. Manifests will be provided by CCoD. This task includes the basement or footings of the houses. Materials will be segregated into four (4) piles and disposed of according to the destination for concrete, brick/block, bare wood, and construction debris.

This item will be measured and paid for as a Unit Cost per house.

007. **Demolition, Disposal of 20 Houses.** This item consists of providing all labor, equipment, and materials to demolish, remove, and dispose of 20 houses (and one non-friable detached garage) where the friable ACM has not been abated from the house prior to demolition. The work will conform to the Project Drawings and Documents. This includes all required environmental safeguards including, but not limited to, temporary safety fencing with attached wind suppression fence, berm materials for runoff control, and any other required BMPs. This task does not include the basement or footings of the houses which is covered in Task 11. Materials will be disposed of according to the manifests provided for ACM contaminated construction debris. This task includes the demolition, stockpiling, and disposal of the concrete foundations and/or footings. The concrete will be required to be cleaned and pass a clearance inspection prior to removal from the site.

Disposal fees at the Denver Arapahoe Disposal Site (DADS) for ACM materials from the project will be paid directly to DADS by CCoD and are not part of the bid, if handled, transported, and delivered to DADS as required by these specifications. Manifests will be provided by CCoD.

This item will be measured and paid for as a Unit Cost per house.

008. **Concrete Demolition and Stockpiling.** This item consists of providing all labor, equipment, and materials required to excavate, demolish, stockpile, and segregate concrete basements, footings, septic tanks, etc. from 33 houses and 1 detached garage; and prepare the material for transport to the recycling facility located at approximately 112th Ave. and Queensburg at DIA or the DADS disposal facility. All concrete from the open abatement houses will go to DADS. Some of the concrete from the vinyl sheet houses will be recycled or disposed of at DADS, depending on materials found on the concrete.

This item will be measured and paid for on a per House basis.

009. **Transport Recyclable Concrete.** This item consists of providing all labor,
equipment, and materials to load, transport, and recycle clean concrete at the DIA Queens Bridge Recycling facility. This may include part or all of 43 houses, which includes concrete stockpiles of 10 previously demolished houses.

This item will be measured and paid for on a per house basis.

010. **Transport Contaminated Concrete.** This item consists of providing all labor, equipment, and materials to load, transport, and dispose of contaminated concrete at the DADS facility. This may include part or all of 43 houses, which includes concrete stockpiles of 10 previously demolished houses.

This item will be measured and paid for on a per house basis.

011. **Clean and Dispose of Septic Tank Material.** This item consists of providing all labor, equipment, and materials to clean out any material found in the septic tanks and properly dispose of it in accordance with the Project Documents.

This item will be measured and paid for on a per Tank basis.

012. **Load, Haul, and Stockpile Backfill Material.** This item consists of providing all labor, equipment, and materials to load, haul, and stockpile additional onsite backfill material. The source of the onsite backfill material will be located in the northeast DIA lot. This item shall include the loading, transport, and stockpiling of the backfilled soils. The soil will be provided by the City at no cost to the contractor.

This item will be measured based upon actual cubic yardage of stockpiled material and paid for per cubic yard by means of a volume survey. The unit price shall be used for all soil material quantities. 1,500 cubic yards is provided for bid comparison only.

013. **Backfill and Compaction.** This item consists of providing all labor, equipment, and materials to backfill, compact, and grade all soils used as backfill material in excavations of 33 houses in accordance with these specifications, the project drawings, and the MMP of these specifications. Backfill shall be placed in 6” maximum thickness lifts and compacted.

This item will be measured and paid for on a per house basis.

014. **Seeding and Mulching.** This item consists of applying a minimum of 3 tons of native prairie grass hay per acre to the exposed soil areas after smooth grading and anchoring the hay into the soil mechanically immediately after spreading with a scalloped-disk mulch anchoring machine to force mulch into the soil surface. Assume 2,500 square feet will be required to be mulched and crimped per lot.
This item will be measured and paid for per each Lot basis.

015. **Demobilization.** This item consists of providing all labor, equipment and materials to demobilize all construction equipment and personnel from the project site at project completion. This item includes removal of all utilities and temporary fixtures installed by the contractor.

This item will be measured and paid for as a Lump Sum Item.

016. **Closure Report.** This item consists of providing all labor, equipment and materials to produce a portion of a closure report for the project. This report shall include all sample information, maps, submittals, and documentation. The contractor shall consult with the Project Manager, URS, and the ACM oversight contractor to develop parts of the report.

This item will be measured and paid for as a Lump Sum Item.

**PART 2 – PRODUCTS**
Not Used

**PART 3 – EXECUTION**
Not Used

END OF SECTION 01025
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Abbreviations for organizations, acronyms and standards.

1.02 ORGANIZATIONS, ACRONYMS AND STANDARDS

ACM Asbestos Containing Materials
AIA American Institute of Architects
AIHA American Industrial Hygiene Association
ANSI American National Standards Institute
ASCE American Society of Civil Engineers
ASHRAE American Society for Heating, Refrigerating, and Air Conditioning Engineers
ASTM American Society for Testing & Material
CCOD City and County of Denver
CD Certificates of Destruction
CDOH Colorado Department of Highways
CDOT Colorado Department of Transportation
CDPHE Colorado Department of Public Health and Environment
CFC Chlorofluorocarbons
CFM cubic feet per minute
CFR Code Federal Regulations
CGA Compressed Gas Association
CO Carbon Monoxide
CPR Cardiopulmonary Resuscitation
CPSC Consumer Product Safety Commission
CS Commercial Standard
DADS Denver Arapahoe Disposal Site
DOT U.S. Department of Transportation
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>DWB</td>
<td>Denver Water Board</td>
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<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
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<tr>
<td>FAR</td>
<td>Federal Acquisition Regulations</td>
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<td>FS</td>
<td>Federal Specification</td>
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<tr>
<td>GA</td>
<td>Gypsum Association</td>
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<tr>
<td>GCC</td>
<td>General Conditions of the Contract</td>
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<tr>
<td>GSA</td>
<td>General Services Administration</td>
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<tr>
<td>HEPA</td>
<td>High Efficiency Particulate Absolute</td>
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<tr>
<td>HUD</td>
<td>Housing and Urban Development</td>
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<tr>
<td>LBP</td>
<td>Lead-based paint</td>
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<tr>
<td>LOD</td>
<td>Limit of Detection</td>
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<tr>
<td>MCEF</td>
<td>Mixed cellulose ester filter</td>
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<td>MMP</td>
<td>Materials Management Plan</td>
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<td>MSDS</td>
<td>Material Safety Data Sheets</td>
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<td>MSHA</td>
<td>Mine Safety and Health Administration</td>
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<tr>
<td>NAD</td>
<td>No Action Determination</td>
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<tr>
<td>NBS</td>
<td>National Bureau of Standards</td>
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<tr>
<td>NEC</td>
<td>National Electrical Code</td>
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<td>NEMA</td>
<td>National Electrical Manufacturers Association</td>
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<tr>
<td>NESHAPS</td>
<td>National Emission Standard for Hazardous Air Pollutants</td>
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<tr>
<td>NFA</td>
<td>No Further Action</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Association</td>
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<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety and Health</td>
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<tr>
<td>NIST</td>
<td>National Institute for Standards and Technology</td>
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<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
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<tr>
<td>PCB</td>
<td>Polychlorinated Biphenyls</td>
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<tr>
<td>PCM</td>
<td>Phase Contrast Microscopy</td>
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<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
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<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>PS</td>
<td>Product Standard</td>
</tr>
<tr>
<td>PSCO</td>
<td>Public Service of Colorado</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
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PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

N/A

END OF SECTION 01070
SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 GENERAL

A. The following is a partial submittal list that is provided for the convenience of the contractor. The City in no way warrants that this list is complete, nor does the inclusion of this list in any way absolve the contractor from reading the Contract Documents and complying with all requirements therein. The City reserves the right to investigate any notice of violations within the State of Colorado.

B. Submittal List: (Most of these will be covered within the present contract)

1. Draft Work Plan to be submitted with Bid,
2. List of previous projects that are similar in scope and over $1,500,000 contract cost,
3. Site Work Plan (includes Excavation Plan stamped by a Colorado Registered Engineer
4. ACM Permit from CDPHE,
5. Safety Plan,
6. Phone List,
7. Demolition Notifications,
8. Demolition Permit from the Cities of Denver,
9. List of Subcontractors, current CCOD class contractor’s license held by each subcontractor,
10. List of Suppliers,
11. Copy of the contractor’s state tax exemption certificate or application,
12. Copy of Schedule of Values,
13. Copy of the contractor’s initial and weekly Construction Progress Schedules, bar chart/critical path scheduling format, hard copy and electronic formats,
14. Letter appointing a Project Superintendent,
15. List of people with signing authority for payments, change orders, and other contractual authority and their phone numbers, mailing addresses and FAX numbers
17. QC Plan.

C. All submittals shall be completed in a neatly compiled format with index and all
attachments included. All submittals shall be transmitted and accepted by the Project Manager prior to beginning work. The contractor shall include adequate time in its schedule and cost in its initial bid for the preparation of the documents and their review before the schedule start of work.

1.02 WORK PLAN

A. The Work Plan shall be submitted to the Project Manager for review as a draft document. The contractor shall address all comments, and all comment responses shall be reviewed and approved by the Project Manager prior to the contractor submitting the final document. The Work Plan shall include those items listed elsewhere in these specifications.

1.03 OTHER PLAN SUBMITTALS

A. Other Plan submittal shall include the following and shall include those items listed elsewhere in these specifications:

1. Fire Prevention and Protection Plan
2. Site Health and Safety Plan

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.1 SUBMITTALS:

A. All required submittals shall be transmitted to the Project Manager with a transmittal letter indicating the number, content, and action required.

B. On request, two copies of all required submittals shall be transmitted.

C. The contractor shall allow 10 working days for Project Manager to review and provide comments.

D. All submittals shall be complete and in good form prior to being transmitted to the Project Manager. Incomplete or unacceptable submittals shall be replaced and resubmitted at contractor’s sole cost. Time or cost extension claims caused by unacceptable submittals shall not be allowable.
E. As-Built Drawing and Summary Letter – The as-built drawings shall include those items listed elsewhere in the specifications. In addition, the contractor shall provide a summary letter identifying utilities that the contractor has discovered through conversations with existing tenants, utility providers, or others regarding existing utilities not shown on the drawings or discrepancies shown on the drawings.

F. Close Out Documents – The close out documents shall include the following as defined elsewhere in these specifications:


2. Inventory of all materials recycled, sold salvaged or disposed of by means other than burial at DADS.

3. Safety Report indicating the number of man-hours worked at the site for all prime and subcontractors, the number of lost time accidents with accident reports, the number of near misses with reports, and all other information collected by the Contractor to support its safety record on the project.

G. Schedule – The schedule shall be submitted in graphic and electronic formats using Microsoft Project, Primavera P3, or Primavera Sure Trak software. The schedule shall utilize a work breakdown structure that substantially matches the submitted schedule of values. Each schedule of value item shall be further refined into a work breakdown structure that fully illustrates the effort and relationship of critical path events. General work items that take more than 14 calendar days to complete shall be refined into shorter duration work elements. The objective of the schedule will be to provide a baseline document that can be used to monitor the progress of the project and administer Contractor pay requests. The work breakdown structure shall contain sufficient detail to achieve this objective.

H. Schedule of Values – The contractor shall submit a schedule of values that is consistent with the Bid Form. The submitted schedule of values shall be further refined to coincide with the work breakdown structure of the submitted schedule. Items on the schedule of values shall be representative of the actual value of the work. This schedule of values, once accepted by the Project Manager, shall become the basis for determining progress payments.

I. Hazardous Material Transporters and Disposal Recycling Sites – The contractor shall submit the names, credentials, contact data, licenses, permits, and audit packages for each entity that will handle, transport, store, destroy, dispose, or recycle any of the hazardous components identified in this project. The credentials licenses permits, and audit data submitted shall be sufficient for the Project Manager to determine that the
proposed entity is experienced, permitted, and appropriate to perform in conformance with these specifications. Each entity shall submit data on investigations; Notices of Violations; sanctions; lawsuits; citations; civil and criminal actions against the entity or personnel; lawsuits; bankruptcy actions; or other activities adversely impacting the entity’s operation that are current or have been current within the past 3 years. The contractor shall submit the data sufficiently in advance of the intended use of the subject entity to allow the Project Manager to fully evaluate the submitted and accept the entity, in no case shall this be less than 15 working days in advance of the intended use.

END OF SECTION 01300
SECTION 01511

FIRE PREVENTION AND PROTECTION

PART 1 - GENERAL

1.1 SUMMARY:

A. This section covers the requirements for fire prevention and protection for the project. Contractor shall develop and implement a written Fire Prevention and Protection Plan, which at a minimum meets the requirements of this section and complies with applicable federal, state, and local fire prevention/protection regulations. Fire prevention and protection procedures shall be prepared and presented in the Work Plan.

1.2 RELATED SECTIONS:

A. General Conditions of the Contract referred to as the City and County of Denver’s “Yellow Book.”

B. Section 01561 – Site Health and Safety Procedures

C. Section 02061 – General Demolition

D. Section 02089 – Removal of Components Containing Hazardous Materials

1.3 REFERENCES:

A. 2009 International Fire Code (IFC)

B. Building Code for the City and County of Denver, latest edition, which is based upon the 2009 International Building Code of the International Code Council with Denver Amendments to this code

C. IFPA 72

1.4 SUBMITTALS:

A. Fire Prevention and Protection Plan. Submit to the Project Manager for review and acceptance prior to commencing any demolition operations. The approved Fire Protection and Prevention Plan complete with all comments addressed shall be made a part of the Contract Documents.

PART 2 - PRODUCTS
PART 3 – EXECUTION

3.01 FIRE PREVENTION

A. The prevention portion of the Fire Prevention and Protection Plan shall, at a minimum, address the following items:

1. Smoking shall be prohibited at or in the vicinity of demolition operations and in all airport structures. Such areas shall be posted “No Smoking or Open Flame.” Smoking shall be prohibited at all areas of the Stapleton site inside the permitted security fence. This includes contractor work site office facility, inside vehicles on site and all areas where combustible or flammable materials exist.

2. Flammable and combustible liquids shall be labeled, handled, and stored in accordance with applicable laws and regulations.

3. Transfer of flammable liquids from one container to another shall be done only when the containers are electrically interconnected (bonded).

4. Equipment motors shall be shut off during fueling.

5. Flammable/combustible liquids shall be stored only in metal cans or drums, which are equipped with self-closing safety faucets, vent bung fittings, and drip pans. Such containers shall be stored outside buildings in an area approved by the Project Manager. Such metal drums shall be properly bonded and grounded.

6. The use and storage of explosives will not be allowed on-site.

7. No open fires shall be permitted.

8. Storage of bulk fuel and lubrication products shall not be inside structures. Tanks and drums shall be properly labeled and secured. All bulk fuel facilities shall be permitted by Denver Fire Department. A copy of the permit shall be posted at the bulk fuel facility and submitted to the Project Manager prior to the first filling of the facility. The facility shall be shown on the submitted work plan for acceptance by the Project Manager.

3.02 FIRE PROTECTION

A. The protection portion of the Fire Prevention and Protection Plan shall, at a minimum, address the following items:

1. All vehicles, construction equipment, temporary offices, work areas, and storage areas shall be equipped with a sufficient number of fire extinguishers of 2A – 10 B:C
areas shall be equipped with a sufficient number of fire extinguishers of 2A – 10 B:C or higher. Locations of fire extinguishers shall be prominently displayed. Fire extinguishers in hazardous areas shall be so located so that travel distance to the nearest fire extinguisher shall not exceed 50 feet.

2. All fire extinguishers shall be inspected and maintained in accordance with NFPA 10.

3. Storage areas shall be kept free of weeds, debris, and other combustible material.

4. The contractor shall maintain adequate Fire Department access to all building areas at all times, including adjacent fire hydrants and the access roads to all SIA tenants.

5. Designate at least one person in a supervisory capacity on each shift that shall be assigned and held responsible for calling the Fire Department immediately whenever a fire occurs. The designated supervisor shall also inspect the premises for possible fires whenever shifts are changed or work is stopped for any reason.

3.03 HOT WORK:

A. Whenever a cutting torch or other equipment that might cause a fire is being used, fire extinguishers shall be kept nearby and ready for instant use. Users of such equipment shall be instructed in the proper method to prevent fire and to extinguish a fire. All “Hot Work” shall require a fire watch spotter who shall verify that all sparks and ignition sources are tended to and shall have no other duties during the “Hot Work” period. “Hot Work” procedures shall be addressed in the Fire Prevention and Protection Plan. “Hot Work” shall include operations requiring an open flame, torches, cutters, or grinders producing sparks, cutting tools with internal combustion engines, or other devices capable of igniting trash, debris, wood, sawdust or similar combustible materials. All fire watchmen shall wear a red vest to identify their function and shall remain on fire watch for a minimum of 1 hour following the end of any hot work. All combustible material shall be cleared from the hot work area for a distance of 35 feet from the cutting area prior to the start of work. It shall be the responsibility of the supervisor, cutter, and fire watchman to verify that both sides of the cut surfaces are clear of combustible materials, concealed areas, and other hazards that could contribute to a fire or explosion.

B. Fuel for torches, engines, cutters, etc. shall not be allowed inside the hangars, buildings, or tunnels at any time in excess of that required for a single days operation. During not attended times, off shifts, or at times when cutting operations are not in progress, all fuel, bottles, cans, drums, etc. shall be removed from the structures and tunnels and are stored in accordance with NFPA and Denver Fire Department requirements away from the structures.

END OF SECTION 01511
SECTION 01550

EXCAVATION PROCEDURES

GENERAL

1.01 Purpose and Scope

This procedure is intended to protect personnel from the hazards associated with excavation entry activities.

1.02 Implementation

Field Operations - Implementation of this program is the responsibility of the Project Manager and field staff.

An approach that does not require employees or subcontractors to enter an excavation is always preferred. If employees or subcontractors must enter an excavation, compliance with this specification or similar client/contractor procedures is required.

1.03 Requirements

A. Competent Person

Appoint an Excavation Competent Person for excavation activities. The Excavation Competent Person:

1. Is responsible for conducting daily inspections of excavations, adjacent areas, and protective systems prior to each shift.

2. Is responsible for inspection after every rainstorm or other hazard.

3. Must have knowledge of soils and soil classification.

4. Understands design and use of protective systems.

5. Has authority to stop work and take corrective action when conditions change.

6. Has the ability to recognize and test hazardous atmospheres.

7. Has formal documentation of training as an Excavation Competent Person.

8. Is physically located at the excavation while work is in progress.

B. Access/Egress
Trench excavations will have ramps or ladders within 25 feet (8 meters) of the entrants.

C. Soil Classification

If a sloping or benching system is issued, soil classifications must be conducted by a Professional Engineer. For the purposes of this standard, all soils will be classified by a person meeting the qualifications of a competent person as described in 29 CFR 1929 Subpart P. The competent person shall consult with a Registered Professional Engineer in the event the soil classification requires additional technical expertise.

D. Protective Systems

Protect employees in excavations deeper than 4 feet (1.2 meters) by means of properly designed protective systems. All protective systems must comply with 29 CFR 1926 Subpart P Appendices B, C, D, and E.

1. Sloping and Benching

   Sloping and Benching must be designed and stamped by a Professional Engineer in accordance with 29 CFR 1926 Subpart P, Appendix B.

2. Timber Shoring for Trenches

   Timber shoring for trenches must be designed and stamped by a Registered Professional Engineer in accordance with 29 CFR 1926 Subpart P, Appendix C.

3. Aluminum Hydraulic Shoring for Trenches

   Aluminum hydraulic shoring for trenches must be approved by a Registered Professional Engineer in accordance with 29 CFR 1926 Subpart P, Appendix D.

4. Alternatives to Timber Shoring

   Trench shields and boxes must be either pre-manufactured with listed load ratings or designed, stamped and constructed under the direction of a Registered Professional Engineer. See 29 CFR 1926 Subpart C, Appendix E for examples.

5. Protective systems designed to protect employees in excavations must be designed and stamped by a Registered Professional Engineer.

6. Excavations will be clearly identified and barricaded to keep unauthorized individuals out.

E. Permit Authorization and Inspections
1. An approved Excavation Authorization Form shall address the following:

   a. Employee training/briefings.
   b. Electrical safety.
   c. Surface Encumbrances.
   d. Underground installations and utilities.
   e. Protective systems.
   f. Access and egress.
   g. Exposure to vehicular traffic.
   h. Exposure to falling loads.
   i. Warning systems for mobile equipment.
   j. Testing for hazardous atmospheres.
   k. Emergency rescue equipment.
   l. Protection from hazards associated with water accumulation.
   m. Stability of adjacent structures.
   n. Protection of employees from loose rock.
   o. Inspections.
   p. Fall protection.

2. Require daily inspections of excavations to be conducted by Competent Person using an approved form.

F. Training/Briefings

Conduct daily safety briefings for all employees associated with excavation activities and document on an approved form. Discuss excavation hazards, protective measures, and work practices that will be applicable to the day’s activities.
1.04 **Documentation Summary**

Records required for the Project Safety File:

A. Competent person qualifications.
B. Excavation Authorization Form.
C. Daily Competent Person inspections.
D. Daily worker briefing documentation.
E. Daily inspection records.

1.05 **Resources**

U.S. OSHA Standard 0 *Excavations* – 29 CFR 1926, Subpart P
A. Appendix B, *Sloping and Benching*
B. Appendix C, *Timber Shoring*
C. Appendix D, *Aluminum Hydraulic Shoring*
D. Appendix E, *Alternatives to Timber Shoring*

END OF SECTION 01550
SECTION 01561
SITE HEALTH AND SAFETY PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY:

A. This section covers the requirements for safety, health, and emergency response for the project. The contractor shall develop and implement a written Site Health and Safety Plan (SHSP), which at a minimum meets the requirements of this section and complies with applicable federal, state, and local regulations.

B. It is the responsibility of contractor to provide all facilities, equipment, materials, and personnel necessary to protect contractor, subcontractor, and visitor personnel from physical injury and potential adverse health effects due to exposure to chemical and physical hazards.

C. The SIA site is a secured facility. This section presents site access requirements that shall be fully complied with by all the contractor personnel, subcontractors, material, suppliers, vendors, and visitors.

1.02 RELATED SECTIONS:

PART A – GENERAL DEMOLITION

A. General Conditions of the Contract referred to as the City and County of Denver’s “Yellow Book.”

B. Section 01511 – Fire Prevention and Protection

C. Section 01550 – Excavation Procedures

D. Section 02061 – General Demolition

E. Section 02089 – Removal of Components with Hazardous Materials

PART B – ASBESTOS REMOVAL

All Specifications are located in the ACM Specifications.

1.03 REFERENCES:


B. OSHA, 29 CFR 1926, Construction Industry Safety and Health Standards.
C. Federal Acquisition Regulations (FAR) 52.236-13, Accident Prevention, April 1984.

D. 5CCR-1001-10, Regulation Number 8, Control of Hazardous Air Pollutants. (Colorado Regulation Number 8)

E. OSHA, 29 CFR, Asbestos

F. Denver Building Code with Amendments.

1.04 SUBMITTALS:

A. Site Health and Safety Plan (SHSP):
Submit to Project Manager for review and acceptance prior to commencing any demolition operations. The accepted SHSP complete with all comments addressed shall be made a part of the Contract Documents.

B. Contractor’s Designated Site Safety Manager:
The contractor shall designate a competent person to oversee safety and security at the site at all times. This person shall be present at the site at all times of operation and shall have the authority to stop operations for safety related concerns.

C. Worker and/or Supervisor Certifications:
Copies of applicable worker/supervisor certifications to include, but not necessarily limited to, asbestos certifications, 40-hour training, CPR, and first aid.

D. Contractor’s Closeout Safety Report.

E. Accident and Near Miss Reports.
The contractor shall submit to Project Manager within 24 hours a detailed report on all accidents or near misses that cause personal injury or property damage, or that could have caused injury or damage. Immediately report all injuries and accidents to Project Manager verbally.

F. Notice of Violations.
The contractor shall notify the Project Manager immediately upon receiving a notice of violation from another agency during the course of the project.

G. Direction from Outside Agencies
The contractor shall notify the Project Manager immediately upon receiving direction from another agency during the course of the project.
1.05 SITE HEALTH AND SAFETY PLAN REQUIREMENTS:

A. The contractor shall prepare and implement a complete SHSP in accordance with all applicable federal, state, and local regulations. The SHSP shall cover contractor, subcontractors, and visitors while on the site.

B. SHSP Administrative Section: The SHSP shall address the following administrative requirements as a minimum:

1. Administrative responsibilities for implementing the SHSP (project organization identifying contractor personnel responsible for accident prevention.)
2. Local requirements, if any, that must be complied with (e.g., noise control, dust control, traffic control, etc.).
3. Methods the contractor proposes to use to control and coordinate subcontractor work.
4. Plans for layout of temporary decontamination facilities, including how the contractor plans to control subcontractors’ activities.
5. Plans for initial indoctrination, continued safety education, and training for the contractor employees.
6. Plans for traffic control and marking of hazards, restricted areas, and highway intersections.
7. Plans for maintaining continued job cleanup and safe access and egress.
8. Plans for emergency response including fire protection, ambulance service, first aid, including the nearest medical facility and emergency phone numbers. This shall include Stapleton specific requirements including, access points, response locations, communication, evacuation, and emergency responder escorts.
9. Plans for inspection of the job site by competent persons including reports to be kept, results of the inspections, and corrective actions taken.
10. Procedures to be used for accident investigation.
11. Description and sketch of temporary power distribution system.
12. Description of safe clearance procedures.
13. Description of office trailer anchoring system.
14. Contingency plans for severe weather. Ensure lightning, wind, heat, cold, and extreme weather conditions are included.
15. Description of methods and procedures for confined space entry including, but not limited to, testing equipment for air quality, personnel equipment and other related safety precautions.
C. Activity Hazard Analysis

1. An activity hazard analysis shall be developed and included in the SHSP for each Contract activity and operation occurring in each major phase of work.

2. The SHSP shall identify the sequence of work, the specific hazards anticipated, and the control measures to be implemented to minimize or eliminate each hazard for each activity.

3. The contractor shall specifically address activities that have the potential for personnel being exposed to physical hazards as well as chemical and biological hazards, including but not limited to contaminated soils, mercury, PCB wastes, asbestos, animal scat, mold, and fungi.

4. An activity hazard analysis shall be developed for each work operation that presents a significant hazard to property or personnel. These include, but are not limited to: hot work activities, lifting and hoisting, confined space entries, heavy equipment, trucking and traffic, falling debris, trip and fall hazards, elevated work, unprotected openings, glass projectiles, etc.

1.06 CLOSE-OUT SAFETY REPORT:

A. At the completion of the Work, contractor shall submit a Close-Out Safety Report. The report shall be signed and dated by the contractor and submitted to the Project Manager. The report shall include procedures and techniques used to decontaminate or dispose of equipment and facilities. The report shall also include a summary of the safety and health aspects of the entire project including the number of man hours worked and the number and extent of lost time injuries and property damage.

PART 2 – PRODUCTS Not Used

PART 3 – EXECUTION

3.01 SITE ACCESS REQUIREMENTS

A. The following site access rules shall be compiled with by all persons entering this site as employees, visitors, subcontractors, suppliers, or others invited or on behalf of the contractor:

1. Vehicles are required to travel directly to their authorized work site in the most direct path, without interfering with construction activities or traffic. All vehicles must park in the area designated for that particular contract.

2. The normal hours for the Site are 7:00 am to 5:30 pm, Monday thru Friday, excluding City of Denver recognized holidays. Access outside of these hours is allowed by the Contract when specific arrangements are made and approved in writing by Project Manager.

3. Access to the site by a contractor is to be controlled by that contractor’s superintendent and only employees and subcontractors of that contractor are to be
allowed into the Site.

4. The site speed limit is 30 mph, when conditions allow. That limit is reduced to 10 mph in the Office Trailer Lot.

5. When the visibility at the site is less than 1 mile, rain or snow is falling, winds are blowing in excess of 30 mph, fog or low clouds are reducing visibility, or when darkness creates a hazard ALL vehicles on site shall be operated at reduced speed to accommodate for the site conditions.

6. All vehicles on site must be legally registered and have valid proof of insurance.

7. All individuals working outside of vehicles on Stapleton property shall wear a hard hat and safety vest. Individuals within demolition areas shall also have hard toed shoes and eye protection as minimum personal protection.

B. SIA is a no smoking site. Smoking is not allowed within the perimeter of the Stapleton site. The contractor shall inform all employees of this requirement and shall enforce compliance. No smoking is allowed in the buildings or structures, in addition to the general site area. Individual Contractor office trailers shall comply with their own corporate policies. The contractor may establish one designated smoking area to accommodate employees. Designated smoking areas are the responsibility of the contractor and are to be provided for the convenience of its employees. This is a privilege that can be revoked by Project Manager at any time for failure to comply with site requirements or if conditions indicate that the smoking area has become a hazard. This smoking area shall be marked and clearly signed. It shall not be within 25 feet of any structure, debris pile, fuel location, material storage area, open field, or combustible materials. An ash container with closed top appropriate for cigarette disposal shall be provided at the designated smoking area. All employees shall utilize the ash container for the disposal of smoking materials. The contractor shall clean the smoking area daily and empty the ash container regularly to eliminate smoking materials on the ground and to ensure the ash container has adequate capacity. Smoking within vehicles is allowed if the vehicles are at least 50 feet from structures, debris, fuel sites, and open fields. No smoking materials may be disposed of on the ground from the vehicles.

C. There shall be no salvage of materials from the project area or other areas on the Site by individual employees.

D. No alcoholic beverages or illegal substances shall be brought onto the site property for any reason.

E. No firearms, cutting weapons, martial arts weapons, clubs, bats, spikes, striking weapons, or any other device that may be used as a weapon may be brought onto the Site property for any reason. This includes personal knives with blades longer than 3 inches.

F. CCOD provides oversight for all demolition activities that occur on the Site. This coverage is for 40 normal working hours per week. Contractors shall conduct all of their activities within this established period and shall include in their bids all costs for this requirement. Should the contractor desire to work extended shifts, Denver recognized holidays, weekends, or after normal working hours, the contractor shall be responsible for the cost of providing the extended oversight effort. All requests for extended coverage shall include the scope of
the intended work, the name of the contractor’s superintendent who will be at the site full
time during the extended period, the date and time of the requested coverage,
acknowledgement that contractor will be responsible for the cost of any required extended
oversight. The cost of the extended oversight will be included in the next executed change
order. All requests for extended oversight must be requested and approved in writing by the
CCOD Project Manager at least 48 hours prior to the anticipated work period. The granting
of permission to work extended hours is not a right of the Contract and is done at the sole
discretion and judgment of the Project Manager. Project Manager shall determine the level
and amount of oversight required based on the proposed scope of work, performance period,
Contractor performance, and other issues that he may determine are appropriate and relevant.
Normal Work Hours for the Site are 7:00am to 5:30pm Monday through Friday, excluding
Denver recognized holidays, unless adjusted with the written authorization of Project
Manager.
SECTION 02061

GENERAL DEMOLITION

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

A. This project includes the following:

1. Abatement, Demolition, segregation, stockpiling, removal, and disposal/recycling of 33 houses, one out-building, and 33 septic tanks,

2. Delivery, stockpile, backfill and compaction of imported soils in the excavations,

3. Loading, hauling, and disposal/recycling of materials,

4. Preserving and protecting existing utilities within the project area

B. The following site items are not to be removed as a part of this demolition Contract:

1. Storm sewer, telephone, gas, fuel, electrical, and water facilities identified to remain,

2. Monitor wells and CP Test Station locations to remain,

C. All work associated with this project shall be performed in accordance with these specification, the Project Drawings, and the Documents. The project consists of the demolition and removal of houses, one out-building, septic tanks, all associated improvements, and Asbestos Containing Materials Debris in the area identified on the Project Drawings. The project consists of loading and hauling contaminated material to DADS and then backfilling and compacting all excavations with clean soil to project specifications. The project shall be to the limits shown on the drawings.

Backfill materials shall be in accordance with these specifications.

General Requirements

1. Perform all asbestos and hazardous material removal as addressed in these specifications and the Project Documents
2. The contractor shall salvage and recycle as much material as possible from the demolition activities. The materials shall be segregated into stockpiles of brick/block, bare wood, construction debris, concrete. Associated manifests will be supplied by CCoD for the appropriate material. All waste debris must be transported to the DADS. Disposal fees at the DADS will be directly paid by the City and are not a part of this Contract, subject to the limitations stated in these specifications.

3. The contractor is responsible for obtaining all permits required.

1.2 RELATED SECTIONS:

A. General Conditions of the Contract referred to as the City and County of Denver’s “Yellow Book.”
B. Section 01511 - Fire Protection
C. Section 01561 - Site Health and Safety Procedures
D. Section 02089 - Removal of Components with Hazardous Materials
E. Stapleton Earthwork Specifications located in Appendix B of these specifications
F. Materials Management Plan located in Appendix A of these specifications

1.3 SUBMITTALS:

A. Work Plan

1. The Work Plan shall be submitted per Section 01300 – Submittals and shall include the following:

a) Draft Work Plan to be submitted with Bid
b) Schedule showing the commencement, order, and completion dates for the parts of this Work. The schedule shall be of sufficient detail to show all key work elements, their expected duration, their relationship to other components and key milestones.
c) Excavation plan stamped by a Colorado Registered Engineer (N/A)
d) Staging Plan – Where the Contractor plans on storage of equipment, employee parking, scale set-up, and trailer set-up.
e) Traffic Plan – Provide route for site ingress and egress, scale routes, and routes to DADS.
f) Dust Control
g) Demolition Project Procedures
h) Backfill Procedures
i) Equipment to be used
j) Indicate in the work plan that a Close-Out Survey will be provided per requirements of this Section (N/A).
B. **Utility Termination Plan (UTP).**

1. The UTP shall be submitted per Section 01300 – Submittals. The UTP shall detail the contractors plan of operation and procedures for identifying, verifying, protecting, and terminating existing utilities (where indicated on the drawings) within the demolition area. In preparing the UTP, Contractor shall include, at a minimum, the following:

   a) Identification of and protection plan for existing utilities that are to remain,
   
   b) Utility agency representative contact name,
   
   c) Schedule for above activities using an accepted critical path method,
   
   d) Emergency plans for unplanned events such as damaging any unidentified utility. The emergency plan shall include contractor’s method of repair for broken waterlines and gravity systems. Include the methods that will minimize introduction of silts/clay and other debris into the storm drain system,

C. **Permits.**

The contractor shall secure the following permits and submit copies thereof to the Project Manager prior to commencing work:

1. Asbestos removal and clearance permits and notices from CDPHE and Adams County,

2. Demolition permits from the State of Colorado and Adams County

4. Hydrant Permit (agreement to purchase water) from the proper entity, if purchase of water is elected.

5. Any other permits required for completion of work.

6. Asbestos wastewater disposal permit from Metro Waste Water (if necessary).

7. Stormwater Management Plan from the City and County of Denver Wastewater Management Division (N/A)

D. **Dump Tickets.**

The contractor shall provide dump tickets to the Project Manager prior to, and as an additional condition of payment for work performed, with verified, original receipts from
DADS, evidencing that all waste material from the job site contracted herein was disposed of in a proper manner. Receipts shall bear the date, time of arrival at DADS, DADS receipt stamp, the tonnage dumped, and the printed name of Contractor's driver. Submit tickets for the prior week’s disposal on the Monday following the week in which the activities took place. In the event such landfill receipts are not provided, the City shall withhold payment until received and accepted.

E. **Contractors Hauling Certification.**

The contractor shall cause each truck that will be utilizing in the hauling to visit the scale prior to being loaded to be weighed empty for Tare Weight records. Each truck shall be reweighed whenever its configuration is modified, trailer changed, or the Tare Weight of the truck is modified in any way. The contractor is responsible for maintaining the original ticket and delivering a copy of all tickets to the City on a weekly basis. Any truck failing to weigh out and provide a ticket to DADS will cause the contractor to incur the full cost of disposal.

F. **Monthly Summaries**

The contractor shall provide a monthly summary to the Project Manager of the nature and weight of all materials that are sent from the site for recycling, including copper, aluminum, steel, tin, timbers, masonry, and concrete and an itemized list of salvaged materials including electrical gear, lights, mechanical units, pumps, motors, etc.

G. **Waste Manifests**

The contractor shall submit originating copies of all asbestos waste or hazardous waste (all) manifests that are sent from the site on a weekly basis. CCoD will provide all manifests to the contractor.

1.4 **PROJECT/SITE CONDITIONS:**

A. **Environmental Requirements.**

1) If suspected petroleum contaminated soils are encountered before removal, the contractor shall immediately notify the Project Manager for direction and shall cease operations in the area until direction is received.

Should petroleum contaminated soils be discovered after they are excavated, contractor shall provide a lined (10 mil polyethylene film) bermed area for storage of up to 300 cubic yards. The bermed containment area shall be constructed in a manner that prevents contaminated stormwater runoff and blowing dust. The contractor shall submit shop drawings for the soils storage area for acceptance by Project Manager as well as appropriate agency approvals. Suspected contaminated soils encountered during
construction will be verified, and sampled if necessary, by the Project Manager. The berm area shall only be constructed if petroleum contaminated soils are found and Project Manager directs that they be excavated and stored. The contractor shall provide training and instruction to equipment operators, laborers, and supervisors in the identification of contaminated soils as well as the procedures for responding to their discovery.

2) Any items of salvageable value to the contractor shall be removed from the structure as Work progresses. Salvaged items and materials must be transported from the site within 72 hours. Storage or sale of removed items or materials on the site will not be permitted.

3) Noise Control. The contractor shall comply with all City noise requirements.

4) General Dust Control. The contractor shall make every effort to take all necessary precautions to prevent and control dust, debris, and dirt from rising, including but not limited to wetting demolished masonry, concrete, plaster, and similar debris. The contractor is fully responsible for compliance with the City standards for dust control. No visible emissions from the work area will be permitted at any time. The contractor shall as a minimum provide one operating water spray for each piece of operating or loading equipment and shall water all access roads as necessary to prevent dust from rising from the contractor’ activities.

The contractor shall protect the work area from fugitive emissions. Any dust from the demolition activities from this contract that impacts the asbestos abatement for this project shall be filtered and barricaded to protect the asbestos abatement operations.

5) ACM Dust Control shall be as specified in these specifications

6) Compliance with governing regulations pertaining to environmental protection is required.

7) A hydrant permit from the Denver Water Department (DWB) may be required for water use necessary for this portion of the Work. The contractor may need to purchase water from DWB. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution. Excess runoff water shall not be allowed to enter the site stormwater system. The contractor shall provide a meter, flow reducer, backflow preventer, and all necessary plumbing to attach to available hydrant systems per DWD requirements.

8) Erosion Control – The contractor shall develop and submit a site erosion control plan that employs Best Management Practices (BMP’s) listed. The intent of the BMP is to prevent sediment and debris from entering the storm sewer systems.

B. Existing Conditions.
1. Conditions existing at time of inspection for bidding purposes will be maintained by the City insofar as practicable. However, variations within the remediation area may occur by the City’s removal and salvage operations prior to start of remediation work. The City’s salvage of equipment prior to Notice To Proceed (NTP) shall not constitute cause for additional compensation. The City assumes no responsibility for the condition of the remediation area. Contractor shall fully investigate the conditions of the project site prior to preparing and submitting its bid. The contractor shall include all costs in its bid necessary to fully execute the project.

2. Verify exact locations and depths of utilities that may interfere with the Work. All such exploratory excavations shall be performed within 15 days after award of the Contract to avoid possible delays to contractor’s work. When such exploratory excavations show the utility location as shown to be in error, notify the Project Manager.
lines and cable locations before commencing any digging. The number is (800) 922-1987.

4. No utility services are available from within the facility. The contractor shall provide all temporary facilities required at the time of the demolition operation including trailers, telephones, toilets, temporary water, potable water, sanitary facilities, temporary electric, etc. The contractor shall coordinate with the Project Manager to identify a sewer manhole location for wastewater disposal. Disposal shall be limited to disposal of rinse water from asbestos abatement activities if permits from Denver Waste Water have been obtained.

1.5 PROTECTION OF ADJACENT BUILDINGS AND SURROUNDINGS:

A. The contractor shall protect roads and fences not identified for removal in the project vicinity.

B. The contractor shall not interfere with the use of adjacent buildings. The contractor shall maintain free and safe passage to and from.

C. The contractor shall clean and maintain streets designated as haulage routes during the demolition operation in a manner and as often as necessary to maintain safe and clean access, to the satisfaction of the Project Manager.

D. Remediation truck traffic shall be evenly spaced throughout the “rush-hour” time periods. Rush-hour is defined as follows:

1. Monday through Friday 7:00 a.m. to 9:30 a.m.,
2. Monday through Friday 4:00 p.m. to 6:30 p.m.

E. The speed limit within the property is 30 miles per hour, where conditions permit.

F. Use of explosives will not be permitted.

G. The contractor shall protect all public and private property adjacent to and on the job site and including utility lines, streets, sidewalks, parking structures, light standards, street signs, and make all repairs necessitated by reason of or in the course of operations under this Contract to the complete satisfaction of the owner of the damaged property.

H. Site Security

1. The contractor shall provide barricades and fencing on all sides of the work and add entrance gates to prevent unauthorized access to the immediate work area to the satisfaction of the Project Manager. The contractor shall install signs (minimum 3 ft. X 4 ft.) describing remediation activities and prohibiting unauthorized entry to the site, securely anchored to the ground to resist high winds and posted at several strategic and visible points as needed to make tenants aware on a daily basis of the
demolition activities. Submit sign layout, language and location to Project Manager prior to obtaining the signs.

2. Watchman Service. Contractor may provide a guard service that will fully cooperate with the guard service currently on site including but not limited to coordination of all radio communications, guard shifts, gate traffic, fire watch, and security issues such as unauthorized personnel on the site. The contractor shall provide a full-time gate attendant at all gates opened to facilitate contractor’s operation to prevent unauthorized site access when no operations are ongoing in the immediate area or when the public can easily gain access to the site without authorization. During working hours, security and fire watchmen may be Contractor’s supervisory personnel, but these designated personnel must be on the site at all times.

1.6 PROTECTION OF EXISTING UTILITIES.

A. Monitoring and Environmental Remediation.

The contractor shall protect and not disturb CP Test stations along with monitor and environmental remediation wells surrounding the site within the contractor’s designated work area and outside of his work area. The contractor shall verify monitoring well locations with the Project Manager prior to start of work.

B. Underground Utilities.

Existing utility lines that are indicated or the locations of which are made known to the contractor (through utility locates or by the Project Manager) prior to excavation and that are to be retained shall be protected from damage during demolition. If the utilities are damaged the contractor shall immediately report to the Project Manager and repairs made at the contractor’s own expense.

C. Utilities.

All unanticipated or unshown utilities shall be marked and preserved until the contractor’s surveyor adequately documents the location of the discovery.

D. Acceptance of Repairs.

All repairs to a damaged utility or improvements are subject to inspection and acceptance by an authorized representative of the utility or improvement authority before being concealed by backfill or other work.

E. Fire Hydrants.

All fire hydrants and water control valves not scheduled for demolition shall be kept free
from obstruction. The contractor shall mark every non-useable hydrant as “Out of Service”.

F. **Maintaining in Service.**

Water mains, telephone manholes and ducts, power lines and equipment, gas lines, fuel lines and pits, sanitary sewer lines and storm drain lines are to remain. If utilities are encountered during demolition are not shown on the drawings, the contractor shall notify the Project Manager. The contractor shall be responsible for and shall repair all damage due to its operations. The provisions of this section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

1.7 **PUBLICITY:**

A. The contractor shall comply with all tenets of General Conditions of the Contract referred to as the City and County of Denver’s “Orange Book.” The media may not access the remediation site without specific approval of the Project Manager. The contractor is specifically precluded from scheduling or promoting any type or form of publicity for the remediation project.

**PART 2 – PRODUCTS**

2.1 **MATERIALS:**

A. Materials furnished by the contractor for termination of existing utilities shall meet the requirements of the governing utility agency.

B. Backfill material shall meet the requirements of the Stapleton Earthwork Specifications, CDOT Section 203, Latest Revision of the Standard Specifications for Roadway and Bridge Construction or approval of the Project Manager.

C. In areas for utility disconnect where the asphalt will be replaced and the road or access will be used as such, the contractor shall backfill these areas to 95% or 100% of the Standard Proctor maximum Density and the asphalt surface will be replaced. The contractor shall match the existing thickness of asphalt.

D. All backfill material shall be placed in maximum 6-inch thick lifts and shall be compacted. The contractor will use the designated DIA borrow source for backfill material. The borrow source shall be designated by the Project Manager.

**PART 3 – EXECUTION**
3.1 OSHA REQUIREMENTS

A. All work shall be performed in accordance with the Federal Occupational Safety and Health Administration as well as state and local requirements.

B. Keep work sprinkled with water to prevent dust migration. Provide water and necessary equipment or hydrant for this purpose.

C. Burning of materials on site is not permitted.

3.2 LINES, LEVELS, AND EXISTING DRAWINGS:

A. Contractor shall be solely responsible for proper layout of the Work and for all lines and measurements for all of the Work executed under the Contract Documents. The contractor shall verify the figures shown on the drawings before layout of the work and will be held responsible for any errors or inaccuracies resulting from his failure to do so. The City will in no case assume the responsibility for laying out the Work indicated on the Contract Drawings included in the Contract Documents.

3.3 MAINTAIN FENCING (N/A)

The contractor shall maintain approximately 1,700 feet of 6 feet tall temporary chain link fence as directed by the Project Manager. Concrete footings may be required every 100’. The concrete footings shall be a minimum of 8 inches in diameter and 2 feet deep. Barbed wire and top rails will not be required. The contractor will be responsible for the maintenance of the fence and the subcontractor’s removal of the fence after the completion of the project.

3.4 ABANDONMENT OF EXISTING UTILITIES: (N/A)

A. The contractor shall be responsible for disconnecting and capping all utilities in accordance with the standards set forth by the appropriate utility companies and in accordance with any applicable state laws and/or standards.

1. Xcel (electric). (N/A)

The contractor shall coordinate with the Project Manager for all known power source locations. The contractor shall be responsible to coordinate and/or verify that all power is inactive prior to commencing demolition.

2. Denver Water.

The contractor shall coordinate with the Project Manager for all known water source locations. The contractor shall be responsible to coordinate and/or verify that the water is available for fire protection prior to commencing demolition. The water system shall
remain active during demolition and without leaks.

3. **Xcel (Gas). (N/A)**

The contractor shall coordinate with the Project Manager for all known natural gas line locations. Xcel shall cut and cap all gas lines coming into the building and plugged at the main line feed. All gas lines above grade, exposed and inside the building, shall be verified inactive and then removed and disposed of. The contractor shall coordinate with Xcel that all gas service has been terminated far enough from the demolition area to avoid hazards and damage to Xcel equipment.

4. **Wastewater Management Division.**

The contractor shall coordinate with the Project Manager for all known sanitary and storm sewer main lines and lateral locations. The contractor shall be responsible to coordinate and/or verify storm and sanitary sewer main lines and lateral location prior to commencing demolition. Abandonment of storm and sanitary sewer laterals shall be per Denver Wastewater standards including capping the lateral 2 foot below grade, or at the edge of excavation, or where the lateral connects to the main line utility. If the lateral is connected at a manhole, the lateral abandonment can be made from within the manhole.

Storm sewer facilities including drop inlets, curb and gutter, pipeline, manholes, etc. shown on the drawings that provide drainage to the site shall be left in place and not disturbed unless otherwise shown on the Contract Drawings. The contractor shall leave all hay bales and equipment used in conjunction with the Storm Water Management Plan in place following demolition for continued storm water control. Storm sewer laterals from roof drains shall be capped 2-feet below the adjacent grade outside the building.

5. **Backfilling. (N/A)**

Backfill, compact, and restore all surfaces where openings are made for the disconnecting of utility lines or for any other purpose in accordance with the backfill requirements of this section. Replace asphalt for utility disconnects in areas that will continue to be used as ingress and egress.

3.5 **OWNERSHIP OF MATERIALS:**

A. At the time of issuance of the Notice to Proceed, the contractor takes title to all materials within the project boundaries that have not been previously indicated as remaining or to be salvaged for the benefit of the City. Material to be salvaged by the contractor shall be promptly removed from the site.

3.6 **PRESERVATION OF TREES AND PROTECTED BIRDS:**
A. The contractor shall preserve and protect trees within the project boundaries.

B. The contractor shall identify, preserve, and protect all protected bird nests within the project boundaries. The contractor shall protect the nesting area and keep equipment, materials, and personnel away from the nesting area. The contractor shall mark the area with barricade fencing to prevent unintentional access to the area, and shall maintain the integrity of the fence for the duration of the project. The contractor shall comply with all federal, state, and local regulations regarding the protected birds and comply with all directions from wildlife officials.

3.7 INTENT OF THE PROJECT:

A. The intent of the project is to completely remove all non-ACM and ACM contaminated houses, septic tanks, out-buildings, fencing, dead trees, and general debris in the general project limits as specified in the Stone House Farms Project Documents. The intent further includes returning the site to its approximate final design level grade and legally disposing of debris, hazardous materials and salvageable items. It is the intent of the City to promote recycling and salvage to the maximum extent possible. Salvage and recycling shall be considered when preparing bids.

3.8 FINAL GRADING OF SITE:

A. The contractor shall grade all disturbed soil surfaces to achieve final design grade as specified in the Contract Documents and on the drawings. The intent is to backfill the area to pre-excavation conditions as directed by the Project Manager. The contractor shall spread native prairie grass hay (straw is not acceptable) at a rate of 3 tons per acre by hand or by blower mulch spreader. The hay shall be mechanically anchored immediately after spreading using a scalloped-disk mulch-anchoring machine designed to force mulch into the soil surface. Traffic shall not travel over the mulched area after anchoring. The contractor shall remove all hay and mulching materials from the paved areas of the site that is over spread or blown from the site prior to anchoring to the satisfaction of the Project Manager. The contractor shall secure all materials and equipment to prevent them from being blown across the site by wind prior to anchoring. The contractor shall remove all wind-blown material that originates from the work site from the concrete paving, public streets, other work areas, or elsewhere around the site where it is discovered. The mixture of seed will comply with the CCoD Project Manager submitted mixture sheet.

END OF SECTION 02061
SECTION 02089
REMOVAL AND DISPOSAL OF COMPONENTS CONTAINING NON ACM HAZARDOUS MATERIALS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK:

This section includes all work necessary to remove, recycle, and/or dispose of any debris containing non-ACM hazardous materials. Such components may include, but are not necessarily limited to: mercury vapor lights and electrical switches found to contain mercury, any light ballasts, batteries, transformer oils or hydraulic oils found to contain polychlorinated biphenyls (PCB’s), the PCB container, chlorofluorocarbons (CFCs) containing refrigerants, and incidental lead-based paint. Limited quantities of PCB’s and mercury may exist within the project site. Neither has been specifically identified for removal in the project drawings. Should the contractor encounter non ACM hazardous materials, the contractor should stop work immediately and notify the project manager. The contractor shall refer to Materials Management Plan in Appendix A of these specifications and complete the Contamination Discovery Report in Appendix C of these specifications.

1.02 RELATED SECTIONS:

A. General Conditions of the Contract referred to as the City and County of Denver’s “Yellow Book.”

B. Section 01561 – Site Health and Safety Procedures

C. Section 02061 – General Demolition

1.03 REFERENCES:

A. CODE OF FEDERAL REGULATIONS (CFR):

1. 29 CFR 1910, Occupational Safety and Health Act (OSHA)

2. 29 CFR 1926, Occupational Safety and Health Act, Construction Industry.


4. 40 CFR 761, U.S. Environmental Protection Agency Regulations for PCB.


9. 5CCR–1001–19, Regulation Number 15, Control of Emissions of Ozone Depleting Compounds.

10. 5CCR–1001–10, Regulation Number 8, Control of Hazardous Air Pollutants.

1.04 SUBMITTALS:

A. Initial Submittals of Contractor or Subcontractor Qualification Information: Items 1.04.1.a. through e. and 2. listed below may be submitted after the bid receipt, but are required to be reviewed and accepted by the Project Manager prior to Notice to Proceed:

1. Contractor Qualification Information:
   a. Name and location of at least 2 similar Asbestos Containing Materials removal projects performed by Contractor in the last 2 years, including name and telephone number of a contract representative.

   b. Name of and experience record of superintendent and foreman. Include evidence of knowledge of applicable regulations.

   c. Name and experience record of workers who will be assigned to this project. Include for each person, evidence of successful completion of the required OSHA 40-hour initial training requirements for hazardous waste/materials workers under 29 CFR 1910.120 or the most recent 8-hour annual refresher. Provide certification that employees meet the medical surveillance requirements of 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response.

   d. Items identified in Section 01300, 3.01, I.

2. Laboratory Qualification Information: Submit documentation demonstrating the analytical laboratory has performed ACM analyses, regularly performs these analyses, and conducts analyses utilizing current U.S. Environmental Protection Agency (EPA) analytical methods.
3. **Chain of Custody**: A chain of custody of the physical sample and its corresponding documentation will be maintained throughout the handling of the sample. All samples will be identified, labeled, and logged onto a Chain-of-Custody Form, as a part of the procedure designed to assure the integrity of the resulting data. The record of the physical sample (location and time of sampling) will be joined with the analytical results through accurate accounting of the sample custody.

All laboratories completing chemical analyses will be required to maintain samples in a secure location with limited access from the time of sample receipt through sample disposal. For field operations, samples will be accompanied by a completed Chain-of-Custody form (COC). The sample numbers, locations and requested analyses must be listed. When transferring the possession of the samples, the individuals receiving and relinquishing the samples will sign, date and note the time of transfer on the COC. Copies of all COCs shall be forwarded with all analytical data and any resulting disposal records.

**B. Post-Award PCB/mercury/hazardous materials Submittals:**

Items 1.04.B.1. through 4. listed below are to be submitted after the award, but are required to be reviewed and accepted by the Project Manager prior to starting work:

1. **Spill Prevention and Control Plan (SPCP)**: Submit a SPCP for the procedures proposed for use in complying with the regulations included in this specification, the location and configuration of work areas where lights and ballasts will be removed, and the debris storage location which shall either be a designated restricted access area or an area isolated temporarily by use of plastic sheeting or other method so that any accidental contamination will not spread to unrestricted areas. The SPCP shall also include the number of debris-filled drums to be allowed on-site, the sequencing of PCB/mercury removal work including the sequence of this work with respect to other abatement and demolition work in this building, the interface of trades involved in the performance of work and methods to be used to assure the safety of building occupants and visitors to the site. Contractor’s SPCP shall also include a fall protection plan, which complies with 29 CFR 1926.500 Subpart M, including information on means of access and fall protection.

2. **Contingency Plan**: A contingency plan for response to suspected release of PCBs, or mercury such as leaking ballasts, etc. shall be prepared. This shall include notification of the Project Manager, environmental testing, and clean-up of any contamination resulting from Contractor activities.

3. **Disposal Plan**: The disposal plan shall include the location of approved recycling or permitted incineration-sites and the location of approved contaminated material disposal sites contractor is intending to use. The plan shall also include the qualification of transporter, methods of transport, and a description of the methods to be employed to prevent release to the environment as well as the documentation of waste disposal.
4. **Laboratory Qualification Information**: Submit proof of qualifications of testing laboratory and personnel. Accreditation by the American Industrial Hygiene Association (AIHA) for organic material analysis, shall be minimum proof of compliance. This submittal must be approved by the Project Manager prior to beginning any testing.

C. **During-Work PCB/mercury/hazardous materials Submittals**:

   Items 1.04.C.1. through 3. below are to be submitted to the Project Manager as work progresses at the time specified:

   1. **Leaking Ballasts**: If leaking ballasts are accumulated, submit proof of notification of EPA and local jurisdiction if debris is to be stored for a period over 30 days.

   2. **Hazardous Waste Transportation Manifest Forms**: Record keeping of all City generated PCB and mercury must be accurate, thorough and complete, since the City remains ultimately responsible for their generated PCB until its final EPA approved destruction. Signed and completed Hazardous Waste Manifest Forms shall be used for the transportation of PCB/mercury (in accordance with 40 CFR Part 761 and Part 262) as well as state and local transportation and disposal regulations. Each manifest is to be assigned a unique number. This form shall be signed by each party who has control over the PCB/mercury waste (initiator must have signature authority from generator), and a copy retained by each party as responsibility for the waste is transferred to the next party. To ensure compliance with EPA regulations and to take every precaution against improper/incomplete PCB incineration or disposal and mercury recycling, tracking records are required as follows:

      a. Provide tracking documentation for each container of PCB and/or PCB-contaminated substance(s) and mercury, by forwarding copies of all manifests and continuation sheets (information of contents of each PCB and mercury container) to the Project Manager within one week of shipping.

      b. Each drum/container shall be properly labeled prior to its leaving the PCB/mercury filling location. A properly labeled PCB/mercury drum shall have painted on it, or attached to it (in addition to other requirements) the following information:

   3. **A unique PCB or mercury container serial number as follows**:

      a. Each PCB or mercury drum/container, filled with PCB or mercury contaminated substances will have a serial number that is a combination of the Building number, and the container number painted on the drum/container.
b. The initial date the PCB or mercury container was filled.

c. Contents of the PCB or mercury container. Liquids shall not be mixed with solids.

d. The name of the company and person filling the container.

e. Description of container contents. (Example: contaminated rags, light fixtures, etc.). All communication relating to these containers must reference the container serial number(s).

D. **Certificates of Destruction/Recycling:**

The contractor shall provide Certificates of Destruction (CD) to the Project Manager, as well as a certification that the incineration facility destroys the PCB contaminated materials and/or recycles the PCB ballasts and mercury. The contractor shall provide the Project Manager with signed copies of the manifest within 10 days of receipt of material by the incineration facility and a CD within 30 days of receipt of the material. Reference Section 02061 General Demolition, Paragraph 1.03 Submittals. Certificates of Recycling or destruction for all hazardous materials removed as part of this project shall be submitted to the Project Manager within 10 days of the removal of the materials from SIA.

E. **Certificates of Disposal for Chlorofluorocarbons (CFCs)**

The contractor shall provide CFC drawdown documentation and Certificates of Destruction (CD) to the Project Manager, as well as a certification that the disposal facility destroyed the CFC. Contractor shall provide the Project Manager with signed copies of the manifest within 10 days of receipt of material by the disposal facility and a CD within 30 days of receipt of the material. Reference Section 02061, General Demolition, Paragraph 1.03 Submittals.

F. **Final Submittals:** Item 1.04.F.1. below is to be submitted to the Project Manager at the completion of the Work:

1. Summary Report: Copies of the confirmatory sampling results and all narrative reports performed as part of this Contract.

1.05 **QUALITY ASSURANCE:**

A. Contractor Qualifications: The contractor shall be a firm of established reputation which is regularly engaged in, and which maintains a regular force of workers skilled in mercury, PCB, and lead-based paint handling and removal. Refer to Section 01010 for general QC requirements.

1.06 **CONTRACTOR RESPONSIBILITY:**

A. The contractor shall assume full responsibility and liability for compliance with all
applicable federal, state, and local regulations pertaining to the protection of his workers, visitors to the site, and persons occupying areas adjacent to the site. The contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable federal, state, and local regulations, and shall hold the government harmless for failure to comply with any applicable safety or health regulation on the part of himself, his employees, or his subcontractors.

1.07 PROJECT/SITE CONDITIONS:

A. **Means of Egress:**

   Establish and maintain emergency and fire exits from the work area.

B. **Use of Existing Facilities:**

   Use of existing toilets, showers, and/or other similar facilities for decontamination areas is prohibited.

C. **Access to Work Area:**

   The following personnel shall have unrestricted access to work area:

   1. CDPHE
   2. Project Manager and Designated Staff;
   3. OSHA Inspectors;
   4. EPA Inspectors; and
   5. Local Building or Health Officials

D. **Environmental Condition to be Maintained:** The contractor shall be solely responsible for new release of mercury, PCB, or lead-based paint to the environment during work. The contractor shall not allow or cause additional materials except disposal containers to become mercury, PCB, or lead-based paint contaminated during the work.

1.08 SEQUENCING/SCHEDULING:

A. The contractor shall include in its work plan and schedule all work activities, and a sequencing plan consistent with the plans and procedures that shows all hazardous material work to be completed prior to demolition activities.

B. The contractor shall provide the name and telephone number of at least one responsible individual and an alternate, who will serve to respond to operational problems and/or emergencies on a 24-hour on-call basis. The contractor shall agree that notice to his designated representative shall constitute notice to the contractor and shall agree to be bound by any commitments or representations made by the representative. The designated individual shall be capable of responding to SIA within 4 hours of notification.
PART 2 – PRODUCTS

2.01 EQUIPMENT:

Equipment, including disposable protective clothing, used in the execution of this Contract and provided to visitors to the site, shall comply with the applicable federal, state, and local regulations.

PART 3 – EXECUTION

3.01 PREPARATION:

A. Isolate the PCB/mercury/lead-based paint work area(s) for the duration of the Work so as to prevent unauthorized access by designating the area off limits to all but authorized personnel. Maintain a log of all persons visiting the PCB/mercury/lead-based paint work area(s).

B. Post warning signs and labels as required by this Contract, 29 CFR 1910, 40 CFR 761, and as directed by the Project Manager.

C. Submit all sampling and analytical data to the Project Manager.

3.02 WORK PROCEDURE:

A. General Procedures:

Perform all PCB/mercury/lead-based paint related work and comply with the general safety and health provisions in conformance with 29 CFR 1910, 29 CFR 1926, and 40 CFR, as well as state and local regulations, respectively. If a conflict arises, the more stringent application shall apply until a determination is made by the Project Manager.

B. Coordination of Work of all Trades:

Coordinate the work of all trades to assure that their work is performed in accordance with the applicable regulations and that the PCB, mercury and/or lead-based paint control area(s) remains separated from the remaining work areas.

3.03 PCB/MERCURY ITEM REMOVAL:

A. The following is a basic outline of the minimum steps that will be taken during the removal of PCB/mercury containing items:
1. The plan of action submitted for review and acceptance by the contractor for the removal of PCB, removal and disposal of PCB containers and mercury containing items should address, at a minimum these points and shall fully detail the manner in which the contractor will comply with all applicable federal, state, and local requirements for the identification, removal, and disposal of PCB’s and mercury.

a. Place a minimum of two layers of 6 mil (0.152 mm) plastic sheeting on the floor beneath the disposal drums, the actual work area for ballast removal, and beneath stored disposal drums.

b. Pour a significant (minimum three-inch (7.62-cm) layer) amount of oil absorbent in drums labeled as containing PCB or mercury, as appropriate.

c. Remove the item and place in the drum. If it says "NO PCBs", dispose of it in the normal demolition debris. Do not include non-PCB items in the disposal drums.

d. If an item or PCB labeled ballast shows any sign of leaking, PCB/mercury resistant gloves shall be worn when handling the fixture.

e. Dispose of any light fixture which held an unlabeled leaking ballast as PCB-contaminated material.

f. Layer the ballasts until the drum is full. The drum shall be tightly packed with the minimum possible void space. A minimum of 180 ballasts shall be placed in each drum.

g. Place all used disposable protective clothing and plastic in the drum.

2. PCB containers shall be rinsed per regulations. All PCB contaminated materials including but not limited to rinsed water, PCB containers, ballasts, switches, oils, personal protective equipment, and plastic sheeting are to be placed in drums and shipped for incineration at an EPA approved facility. Disposal of the above materials to a landfill is not permitted under this contract. Non-leaking ballasts can be recycled. The mercury-containing lamps and switches are to be recycled at a regulated facility.

a. The drums shall be labeled with a DOT-ORME label with the following minimum information:

1. A label identifying the contents as containing PCBs as required in 40 CFR 761.45 or mercury as required in 40 CFR 262.31.

2. Date materials were placed in the drum.

3. Materials in the drum, i.e. "75 two-tube light ballasts."
4. Name, address, and phone number of the generator, or owner of the light ballasts.

5. Container identification number.

b. The weight of each container is to be recorded and entered on the manifest.

3. Make arrangements, i.e. obtain EPA Generator Identification Number, make EPA notifications, fill out hazardous waste manifests, and incinerate material in the drums as PCB contaminated waste or recycle material in drums containing mercury.

4. Transport the drum(s) and any other PCB materials to an EPA approved incineration facility or ballast recycling facility and mercury-containing material to an EPA approved recycling facility.

5. Any equipment that has contained PCB containing oils at concentrations above 50 ppm shall be removed, packaged, transported, and destroyed in conformance with the regulations governing PCB destruction. All equipment, ancillary equipment, hoses, pipes, gages, shells, cores, etc. shall be for all equipment and fitting that are associated with the main oil storage reservoir. The equipment shall be manifested and transported directly to the destruction site. Destruction by incineration shall be the only acceptable means of destroying the PCBs on the equipment. Provide copies of the chain of custody and transport manifest when the equipment leaves the site. Provide the completed chain of custody, transport manifest, and certificate of destruction within 30 days of the equipment leaving the site.

3.04 FIELD QUALITY CONTROL:

A. Site Inspection and Stop Work Orders:

While performing this work, the contractor shall be subject to on-site inspection by federal, state, or local agencies. Work shall also be subject to inspection by OSHA and EPA inspectors and/or local building or health officials. If found to be in violation by one of these officials, the contractor shall cease all work immediately. Until the violation is resolved, standby time required to resolve the violation shall be at the contractor's expense. One complete set of equipment (such as respirators and disposable clothing) required for entry to the work area shall be made available within 2 hours of request by the Project Manager for inspection of the work area. Such requests will only be made during the contractor's working hours.

3.05 CLEANUP AND DISPOSAL:

A. Permits and Notifications:

Secure necessary permits in conjunction with PCB/mercury removal, hauling and disposal and provide timely notification of such actions, as may be required by federal, state,
regional, and local authorities. Notify the regional office of the United States Environmental Protection Agency and provide copies of the notification to the Project Manager 10 days prior to the commencement of the Work.

B. **Housekeeping:**

Essential parts of PCB/mercury control are housekeeping and cleanup procedures. Maintain all surfaces on the work area free of accumulations of debris to prevent further dispersion. Give meticulous attention to restricting the spread of debris, keep waste from being distributed over the general area or to other areas in the buildings. The blowing down of the work area with compressed air is forbidden. Post appropriate hazard warning signs. In all possible instances workers shall cleanup their own areas.

The contractor shall equip personnel engaged in cleaning up scrap and waste with necessary personal protective clothing.

C. **Disposal of PCB/mercury Containing Materials:**

Collect and dispose or recycle all PCB ballast and oils. Collect and dispose of all contaminated waste, rags, scrap, debris, bags, containers, equipment, metal, and PCB contaminated clothing in properly labeled PCB disposal drums. Mercury containing wastes shall be placed in properly labeled mercury recycling drums or boxes separate from the PCB drums. The contractor will provide the Project Manager with a copy of all manifests and continuation sheets resulting from the incineration (Certificate of Destruction) and disposal/recycling of the PCB containing waste and mercury recycling. In some instances, a temporary holding area can be established upon approval by the Project Manager for properly packaged PCB/mercury waste. All PCB materials shall be destroyed by incineration or recycled. Disposal by landfilling or other means shall not be permitted.

D. **Approval of Final Cleanup:**

The Project Manager will inspect the work area for acceptance of the PCB/mercury removal. Contamination, dust or debris is not permitted on any surface in or around the work area as determined by visual observation. All specified materials must be removed from the work area prior to receiving approval of final cleanup. The Project Manager will review and accept final cleaning and restoration of the work area.

3.06 **REFRIGERANTS:**

A. The contractor shall inspect and remove any regulated refrigerants from mechanical equipment, drinking fountains, compressors, and coolers. The contractor shall comply with federal, state, and local regulations for handling, recycling, storing, and disposal of the refrigerant. The contractor shall provide disposal/reuse certificates for refrigerants. A contractor licensed to remove and dispose of CFCs shall remove refrigerants.
3.07 BATTERIES:

A. The contractor shall inspect, remove and properly dispose of all batteries in and around the demolition project area. These batteries are located inside equipment that are used for emergency lighting, equipment needing emergency backup power, exit signs, HVAC controls, and other various pieces of equipment. The contractor shall comply with federal, state, and local regulations for handling, recycling, storing, and disposal of the batteries. The contractor shall provide chains of custody for the handling, transport and disposal (recycling) of all batteries within 10 working days of transporting the batteries from the site. The contractor shall submit the disposal (recycling) facility that will be used for disposing of the batteries in the Work Plan for review and acceptance by the Project Manager prior to beginning the battery removal work. The final disposal of the batteries shall be by recycling, reclaiming, reusing, or destruction. Landfilling or land disposal of the batteries shall not be acceptable.

3.08 CHEMICAL SWEEP

A. The contractor shall inspect all areas in and around the project work area for containerized hazardous materials that are not specifically identified in other specification sections. These may include paints, lubricants, cleaners, HVAC chemicals, maintenance materials, radioactive sources, and all other materials which may not be legally disposed of at the DADS facility. The contractor shall collect all discovered materials into a central staging area and prepare these materials for transportation and disposal at appropriate facilities. The contractor shall legally transport and dispose of all materials discovered during the sweep or that may be discovered during demolition operations. All personnel handling these materials shall be appropriately trained. Incompatible materials shall be segregated and handled separately. The contractor shall obtain all necessary laboratory analysis to allow for proper disposal and shall submit analysis data, chains of custody, manifests, Certificates of Destruction, and facility credentials prior to applying for payment of this item. All radioactive sources discovered in equipment, exit signs, or other fixtures shall be packaged and transported to the originating source. The contractor shall coordinate all packaging, shipping, licensing, permitting, shipping, and shall pay all fees and permits associated with the removal of the radiological sources from the site.

END OF SECTION 02089
SECTION 01091

DEFINITIONS OF STANDARDS - ASBESTOS ABATEMENT

PART 1 - GENERAL

1.0 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Special Contract Conditions and other Specification sections, apply to Work of this section.

1.1 DEFINITIONS:

A. General Explanation: Drawings must be recognized as diagrammatic in nature and not completely descriptive of the requirements indicated thereon. Definitions and explanations in this section are not necessarily either complete or exclusive, but are general for the Work to the extent they are not stated more explicitly in another element of Contract Documents.

B. General Requirements: The definitions provided below are applicable to activities associated with the identification, removal, remediation, abatement, proper handling and disposal of asbestos containing materials and materials suspected to contain asbestos;

C. Indicated: The term "Indicated" is a cross-reference to graphic representations, notes or schedules on drawings, to other paragraphs or schedules in the specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for the purpose of helping reader, locate or cross-reference, and no limitation of location is intended except as specifically noted;

D. Directed, Requested, etc.: Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by Project Manager," "requested by "Project Manager," "approved by "Project Manager," and similar phrases. However, no such implied meaning will be interpreted to extend Project Manager's responsibility into Contractor's responsibility for abatement, nor City's responsibility or authority over contract administration;

E. Approve: Where used in conjunction with Project Manager's response to submittals, requests, applications, inquires, reports and claims by Contractor, the meaning of term "approved" will be held to limitations of Project Manager's responsibilities and duties as specified in General Special Contract Conditions. In no case will "approval" by Project Manager be interpreted as a release of Contractor
from responsibilities to fulfill all obligations and requirements of Contract Documents;

F. **Project Site:** The term "project site" is defined as the space available to the contractor for performance of the Work, either exclusively or in conjunction with others performing other Work as part of the project. The extent of project site is shown on the drawings. The drawings are schematic and may or may not be identical with the as-built conditions encountered on the project;

G. **Furnish:** Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance;

H. **Install:** Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance;

I. **Provide:** Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance;

J. **Installer:** The term "installer" is defined as the entity (person or firm) engaged by Contractor, or its subcontractor or sub-subcontractor for performance of a particular unit of Work at project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (Installer) be expert in operations they are engaged to perform;

K. **Testing Laboratory:** The term "testing laboratory" is defined as an independent entity engaged to perform specific inspections or tests of the Work, either at project site or elsewhere; and to report and (if required) interpret results of those inspections or tests;

L. **General Superintendent:** is the contractor's representative at the Work site. This person will generally be the General Superintendent required by OSHA in 29 CFR 1926.

### 1.2 Definitions Relative to Asbestos Abatement:

A. **Abatement:** Procedures to decrease or eliminate fiber release from asbestos containing building materials. Abatement includes removal, encapsulation, and enclosure.

B. **ACS:** Asbestos Contaminated Soil.
C. **Aerosol:** A system consisting of particles, solid or liquid, suspended in air.

D. **Air Monitoring:** The process of measuring the fiber content of a specific volume of air.

E. **Air Monitoring Specialist:** An individual who by qualifications and experience is proficient in asbestos abatement air monitoring. This individual shall conduct, oversee, or be responsible for air monitoring of asbestos abatement projects before, during, and after the project has been completed. This individual will have completed an Air Monitoring Specialist/NIOSH 582 or equivalent training course and will be responsible for all final air monitoring.

F. **Air Monitoring Technician:** An individual who assists the air monitoring specialist with air monitoring before and during the project.

G. **Air Sample Collection Filter:** Membrane filter used to collect fibers/particulates which are counted and/or analyzed. Membrane is usually made of mixed cellulose ester material for PCM, (phase contrast microscopy) and polycarbonate or mixed cellulose ester for TEM (transmission electron microscopy).

H. **Amended Water:** Water to which a surfactant has been added.

I. **Asbestos:** The asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite, and actinolite-tremolite.

J. **Asbestos containing material (ACM):** Any material containing more than 1% by weight of fibrous asbestos of any type.

K. **Asbestos Containing Waste Material:** Any material which is, or is suspected of being or any material contaminated with an asbestos containing material which is to be removed from a Work Area for proper disposal.

L. **Asbestos Contaminated Elements (ACE):** Building elements such as ceilings, walls, lights and ductwork that are contaminated by asbestos.

M. **Authorized Visitor:** The City, the Project Manager, testing lab personnel, the Architect/Engineer or a representative of any federal, state and local regulatory or other agency/person having authority over the project.

N. **Barrier:** Any material that seals off the Work Area to inhibit fiber movement.

O. **Breathing Zone:** A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.
P. **Bulk Test:** The collection and analysis of samples of suspected asbestos materials. A small amount, or bulk, of the material is physically removed from the structure and placed in a rigid airtight container for transportation to an accredited lab for analysis.

Q. **CCoD:** City and County of Denver

R. **CDPHE:** Colorado Department of Health and Environment

S. **Ceiling Concentration:** The concentration of an airborne substance that shall not be exceeded.

T. **Changing Area:** Normally the first chamber of the personnel decontamination facilities, i.e., the “clean room”.

U. **Clean Room:** An uncontaminated area (as may be confirmed by air sampling) or room which is part of the worker decontamination enclosure system, with provisions for storage of workers' and Authorized Visitors' street clothes and protective equipment.

V. **Clearance Sample:** An area sample taken to ascertain airborne fiber levels after removal, clean-up, and final inspection have been completed. Performed by the Air Monitoring Specialist.

W. **Count:** Refers to “Fiber Count,” or the average number of asbestos fibers greater than five micrometers in length per cubic centimeter of air.

X. **Decontamination Enclosure System:** A series of connected rooms, with air locks between any adjacent rooms, for the decontamination of workers and Authorized Visitors or of materials and equipment.

Y. **Demolition:** The wrecking or taking out of any building component material, substrate, system, finish or assembly or a facility together with any related handling operations.

Z. **Disposal Bag:** 6 mil thick leak-tight poly bags with appropriate label which is used for transporting asbestos waste from Work and to disposal site. All labels must meet current OSHA and EPA requirements.

AA. **Drum:** A rigid, impermeable container made of cardboard, metal or plastic which can be sealed in an air and watertight manner.

BB. **Equipment Room:** A contaminated area or room which is part of the worker decontamination enclosure system with provisions for storage of contaminated clothing and equipment. The equipment room shall have a fan venting air back into the Work Area or discharged to the outside through a HEPA filter.
CC. f/cc: Abbreviation for fibers per cubic centimeter of air. This is the standard measurement units used to measure the level of asbestos contamination in the air.

DD. Filter: A media component used in respirators, vacuums, and local exhaust systems to remove solid or liquid particles from the air.

EE. Friable Asbestos Material: Material that contains more than 1.0% asbestos by weight, and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

FF. GAC: The General Abatement Contractor who contracts directly with CCoD to perform the abatement work.

GG. HEPA Filter: A High Efficiency Particulate Absolute (HEPA) filter capable of trapping and retaining 99.97% of asbestos fibers greater than 0.3 microns in length.

HH. HEPA Filter Vacuum Collection Equipment (or vacuum cleaner): High efficiency particulate air (absolute) filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97% efficiency for retaining fibers of 0.3 microns or larger.

II. High-Efficiency Filter: A filter which removes from air 99.97% or more of monodisperse dioctyl phthalate (DOP) particles having a mean particle diameter of 0.3 micrometer.

JJ. HMWMD: Hazardous Materials and Management Division

KK. MCEF: Mixed cellulose ester filter.

LL. NAD: No Action Determination

MM. NFA: No Further Action

NN. Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.


PP. Non-Friable Asbestos-Containing Material (NF-ACM): Material that contains more than 1% asbestos by weight but cannot be crumbled, pulverized, or reduced to powder by hand pressure when dry. Non-friable asbestos materials can release asbestos when power tools such as grinders, sanders, drills, etc. are used on them.
QQ. **PCM**: Abbreviation for phase contrast microscopy. Phase contrast microscopy utilizes a light microscope for the purpose of counting fibers. Reference NIOSH 7400 Method.

RR. **Personal Monitoring**: Sampling of the asbestos fiber concentrations within the breathing zone of an employee.

SS. **Polyethylene Sheeting**: Strong plastic barrier material available in transparent, flame retardant, black, opaque, reinforced, etc. colors/configurations.

TT. **Positive/Negative Pressure Fit Check**: A negative-pressure respirator fit check, performed by placing the palm of one hand over the exhalation valve and exhaling (positive pressure) and feeling for exhalation valve and exhaling (positive pressure) and feeling for facepiece-to-face fit leakage or, covering the filters cartridges with the palms of the hand and inhaling (negative pressure) while feeling for facepiece-to-face fit leakage.

UU. **Project Manager**: The project manager shall be the representative of the City designated in the General Contract. Actions required by the project manager may be delegated to consultants or oversight contractors if done in writing.

VV. **Protection Factor**: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.

WW. **Removal**: The act of removing asbestos containing or contaminated materials from the structure to a suitable disposal site.

XX. **Respirator**: A device designed to protect the wearer from the inhalation of harmful atmospheres.

YY. **s/mm²**: Abbreviation for structures per square millimeter. Standard measurement unit used to measure the level of asbestos contamination in the air when method of analysis is TEM.

ZZ. **SIA**: The Former Stapleton International Airport

AAA. **Shower Room**: A room between the clean room and the equipment (dirty) room in the worker decontamination enclosure system. The shower shall be of rigid, non-pliable material which can easily be cleaned and shall contain the following accessories: individual hot and cold water valves with individual supply lines, a fixed, wall mounted shower head, a drain of such construction to eliminate standing water, a pump and HEPA filtering device for wastewater, and an adequate supply of soap. Contractor shall pay careful attention to ensure against leakage of any kind from the Shower Room.
BBB. **TEM**: Abbreviation for transmission electron microscopy. TEM is used for the purpose of fiber counting and has the analytical capacity of identifying asbestos fibers.

CCC. **Time Weighted Average (TWA)**: The average concentration of a contaminant in air during a specific time period.

DDD. **Visible Emissions**: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

EEE. **Work Area**: The area where asbestos related Work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel. Work Area is a Regulated Area as defined by 29 CFR 1926.1101.

FFF. **Worker Decontamination Enclosure System**: A decontamination enclosure system for workers, consisting of a clean room, a shower room, and an equipment room separated from each other and from the Work Area by airlocks.

1.3 **FORMAT AND SPECIFICATION EXPLANATIONS**:

A. **Specification Production**: None of the following explanations shall be interpreted so as to modify the substance of the contract requirements.

B. **Sections and Specifications/Sub-sections**: For convenience, the basic unit of this text is a "specification/sub-section". Each specification/sub-section is identified by a descriptive title (name) and number. Individual specification/sub-sections are grouped together with others of similar or related Work groupings and are known as "sections". The specification/sub-section title is not intended to limit meaning or content of a specification/sub-section, nor to be fully descriptive of the requirements specified therein, nor to be an integral part of text.
Each specification has been subdivided into 3 "parts" for uniformity and convenience (Part 1 - General, Part 2 - Products, and Part 3 - Execution); some specifications may not require the use of all three parts. These titles do not limit the meaning of and are not an integral part of text which specifies requirements.

C. **Subordination of Text:** Portions of specification text are subordinated to other portions in the following manner (lowest level to highest).

1. Indented (from left margin) paragraphs and lines of text are subordinate to preceding test which is not indented, or which indented by a lesser amount.

2. Paragraphs and lines of text are subordinate to sub-article titles, which are printed in upper/lower-case lettering.

3. Sub-articles are subordinate to article titles, which are printed in upper-case lettering.

4. Subordination (if any) of certain sections (or portions of sections) to other sections is described within those sections.

D. **Underscoring** is used strictly to assist the reader of specification text in scanning text for key words (for quick recall). No emphasis or relative importance of text is intended where underscoring is used.

E. **Imperative language** is used generally in specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by the contractor. For clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by the contractor, or when so noted by others.

F. **Section numbering** is used to facilitate cross-references in the Contract Documents. Sections are placed in Project Manual in numeric sequence; however, numbering sequence is not without unused sequential numbers. A listing of sections is provided at the beginning of the Project Manual in the Table of Contents.

G. **Page Numbering:** Pages are numbered independently for each section and are recorded in the listing of sections (Index or Table of Contents) in Project Manual. The section number is shown together with the page number at the bottom of each page to facilitate the location of text in the Project Manual.

H. **Project Identification:** Project name/number and date of Contract Documents (either complete or abbreviated) are recorded on each page of specifications to minimize possible misuse of specifications, or confusion with other project specifications.
I. Specification Content: Because of methods by which this project specification has been produced, certain general characteristics of content, and conventions in use of language are explained as follows:

J. Specifying Methods: The techniques or methods of specifying to record requirements varies throughout text, and may include "prescriptive," "open generic-descriptive," "compliance with standards," "performance," "proprietary," or a combination of these. The method used for specifying one unit of Work has no bearing on requirements for another unit of Work.

K. Overlapping and Conflicting Requirements: Where compliance with 2 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 requirement is intended and will be enforced, unless specifically detailed language written into Contract Documents clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently-equal-but-different requirements, and uncertainties as to which level of quality is more stringent, to Project Manager for a decision before proceeding.

L. Contractor's Options: Except for overlapping or conflicting requirements, where more than one set of requirements are specified for a particular unit of Work, option is intended to be the contractor's regardless of whether or not it is specifically indicated as such. The contractor shall submit in writing for acceptance by the City.

M. Minimum Quality/Quantity: In every instance, quality level or quantity shown or specified is intended to be the minimum for the Work to be performed. Except as otherwise specifically indicated, actual Work may either comply exactly with that minimum (within specified tolerances), or may exceed that minimum within reasonable limits. In complying with requirements, indicated numeric values are either minimums or maximums as noted or as appropriate for context of the requirements. Refer instances of uncertainty to Project Manager for decision before proceeding.

N. Specialist's Assignments: In certain instances, specification text requires (or implies) that specific Work is to be assigned to specialists or expert entities, who must be engaged for the performance of that Work. Such assignments shall be recognized as special requirements over which the contractor has no choice or option. These requirements should not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the Work; they are also not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of Work is recognized as "expert" for indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of entire set of contract requirements remains with the contractor.
O. **Trades:** Except as otherwise indicated, the use of titles such as "carpentry" in specification text implies neither that the Work must be performed by an accredited or unionized tradesperson of corresponding generic name (such as "carpenter"), nor that specified requirements apply exclusively to Work by tradespersons of that corresponding generic name.

P. **Abbreviations:** The language of specifications and other Contract Documents is of the abbreviated type in certain instances, and implies words and meanings which will be appropriately interpreted. Actual word abbreviations of a self-explanatory nature have been included in the texts. Specific abbreviations have been established, principally for lengthy technical terminology and primarily in conjunction with coordination of specification requirements with notations on drawings and in schedules. These are frequently defined in section at first instance of use. Trade association names and titles of general standards are frequently abbreviated. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and where full context of the Contract Documents so indicates.

1.4 **DRAWING SYMBOLS:**

**General:** Except as otherwise indicated, graphic symbols used on drawings are those symbols recognized in the construction industry for purposes indicated.

1.5 **INDUSTRY STANDARDS:**

A. **General Applicability of Standards:** Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, applicable standards of the construction industry have the same force and effect (and are made a part of Contract Documents by reference) as if copied directly into Contract Documents, or as if published copies were bound herewith. Refer to the other Contract Documents for resolution of overlapping and conflicting requirements which result from the application of several different industry standards to the same unit of Work. Refer to individual unit of Work sections for indications of which specialized codes and standard the Contractor must keep at the project site, available for reference.

B. **Referenced Standards** (referenced directly in Contract Documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to Work.

C. **Non-referenced standards** are hereby defined to have no particular applicability to the Work, except as general requirements of whether the Work complies with industry accepted professional Work standards recognized in the construction industry.
D. **Publication Dates:** Except as otherwise indicated (or may be mandated by law), where compliance with the industry standard is required, comply with standard in effect as of date of Contract Documents.

E. **Updated Standards:** At the request of the Project Manager, submit a change order proposal where an applicable industry code or standard has been revised and reissued after the date of the Contract Documents and before the performance of the Work affected. The Project Manager will decide whether to issue the change order to proceed with the updated standard.

F. **Copies of Standards:** The Contract Documents require that each entity performing Work be experienced in that part of the Work being performed. Each entity is also required to be familiar with recognized industry standards applicable to that part of the Work. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed for proper performance of the Work, the contractor is required to obtain such copies directly from the publication source.

2. Although certain copies of standards needed for enforcement of the requirements may be required submittals, the Project Manager reserves the right to require the contractor to submit additional copies of these standards as necessary for enforcement of the requirements.

G. **Abbreviations and Names:** Where acronyms or abbreviations are used but not identified in specifications or other Contract Documents they are defined to mean the industry recognized name of trade association, standards generating organization, governing authority or other entity applicable to context of text provision. Refer to "Encyclopedia of Associations," published by Gale Research Co., available in large libraries.

H. **Abbreviations and Names:** The following acronyms or abbreviations as referenced in Contract Documents are defined to mean the associated names. Both names and addresses are subject to change, and are believed to be, but are not assured to be, accurate and up-to-date as of date of Contract Documents:

   AIA American Institute of Architects  
   1735 New York Ave. NW;  
   Washington, DC 20006

   ANSI American National Standards Institute  
   1430 Broadway, New York, NY 10018  
   212/354-3300
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
</table>
| ASHRAE  | American Society for Heating, Refrigerating, and Air Conditioning Engineers  
1791 Tullie Circle NE;  
Atlanta, GA  30329  
404/636-8400 |
| ASTM    | American Society for Testing and Materials  
100 Barr Harber Drive  
West Conshonocken, PA  
19428-2959  
610/832-9585 |
| CDPHE   | Colorado Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, CO  80222-1530 |
| CFR     | Code of Federal Regulations  
Available from Government Printing Office;  
Washington, DC  20402  
(usually first published in Federal Register) |
| CGA     | Compressed Gas Association  
1235 Jefferson Davis Highway;  
Arlington, VA  22202 |
| CS      | Commercial Standard of NBS (U.S. Department of Commerce)  
Governmental Printing Office;  
Washington, DC  20402 |
| DADS    | Denver Arapahoe Disposal Site  
3500 S. Gun Club Road  
Aurora, CO  80202 |
| EPA     | Environmental Protection Agency  
401 M St., SW; Washington, DC  20460  
202/382-3949 |
| FS      | Federal Specification (General Services Admin.)  
Obtain from your Regional GSA Office, or purchase from GSA Specifications Unit (WFSIS); 7th and D Streets, SW,  
Washington, DC  20406 |
202/472-2205 or 2140

GA  Gypsum Association  
1603 Orrington Ave.; Evanston, IL 60201  
312/491-1744

GSA  General Services Administration  
F St. and 18th St., NW;  
Washington, DC 20405  
202/655-4000

NIOSH  National Institute for Occupational Safety and Health  
944 Chestnut Ridge Road  
Morgantown, WV 26505  
304/291-4595

MIL  Military Standardization Documents  
(U.S. Department of Defense)  
Naval Publications and Forms Center  
5801 Tabor Ave.; Philadelphia, PA 19120

MSHA  Mine Safety and Health Administration  
P.O. Box 251, Route 1  
Triadelphia, WV 26059

NBS  National Bureau of Standards  
(U.S. Dept. of Commerce)  
Gaithersburg, MD 20234  
301/921-1000

NEC  National Electrical Code (by NFPA)

NFPA  National Fire Protection Association  
Batterymarch Park, Quincy, MA 02269  
617/770-3000

OSHA  Occupational Safety & Health Administration  
(U.S. Dept. of Labor)  
Governmental Printing Office;  
Washington, DC 20402

PS  Product Standard of NBS (U.S. Dept. of Commerce)  
Governmental Printing Office;  
Washington, DC 20402
UL
Underwriters Laboratories
333 Pfingsten Rd.; Northbrook, IL 60062

1.6 SUBMITTALS:

Permits, Licenses and Certificates: For the City's records, submit copies of all permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

END OF SECTION 01091
SECTION 01092

CODES AND REGULATIONS - ASBESTOS ABATEMENT (Removal)

PART 1 – GENERAL

1.0 SCOPE

1.1 SUMMARY: This section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of the specification for asbestos abatement. This section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received, or which must be given to governmental agencies before start of work.

A) Requirements include adherence to work practices and procedures set forth in applicable codes, regulations and standards.

B) Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

1.2 CODES AND REGULATIONS:

A) General Applicability of Codes and Regulations, and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

B) Contractor Responsibility: The contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State, and local regulations. The contractor shall hold the Owner, Project Manager, and Owner's Representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employees, or his subcontractors.

C) Federal Requirements: which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

1) OSHA: U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA), including but not limited to:
a) **Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actionlite:**
   Final Rules Title 29, Part 1910, Section 1001, Code of Federal Regulations
   Final Rules Title 29, Part 1926, Section 1001, Code of Federal Regulations

b) **Respiratory Protection:**
   Title 29, Part 1910 Section 134, Code of Federal Regulations
   Title 29, Part 1926, Section 103, Code of Federal Regulations

c) **Personal Protective Equipment for General Industry:**
   Title 29, Part 1910, Section 132, Code of Federal Regulations
   Title 29, Part 1926, Sections 95 - 107, Code of Federal Regulations

d) **Access to Employee Exposure and Medical Records:**
   Title 29, Part 1926, Section 33, Code of Federal Regulations

e) **Hazard Communication Standards:**
   Title 29, Part 1926, Section 59, Code of Federal Regulations

f) **Specifications for Accident Prevention Signs and Tags:**
   Title 29, Part 1910, Section 145, Code of Federal Regulations

g) ** Permit Required Confined Space:**
   Title 29, Part 1910, Section 146, Code of Federal Regulations

h) **Construction Industry:**
   Title 29, Part 1910, Section 1001, Code of Federal Regulations
   Title 29, Part 1910, Section 1101, Code of Federal Regulations

i) **Construction Industry - General Duty Standards:**
   Title 29, Part 1926, Sections 20 through 35, Code of Federal Regulations

j) **Exposure in Construction Standard:**
   Title Part 1926.62, Code of Federal Regulations

k) **General Industry Lead Standard:**
   Title 29, Part 1910.1025, Code of Federal Regulations

l) **Scaffolds:**
   Title 29, Part 1926, Subpart L and all applicable appendices.
2) DOT: U.S. Department of Transportation, including but not limited to:

   a) Hazardous Substances:
      Title 49, Part 171 and 172, Code of Federal Regulations

   b) Hazardous Material Regulations:
      General Awareness and Training Requirements for Handlers, Loaders, and
      Drivers, Title 49, Parts 171 - 180, Code of Federal Regulations

   c) Hazardous Material Regulations:
      Editorial and Technical Revisions
      Title 49, Parts 171 - 180, Code of Federal Regulations

3) EPA: U. S. Environmental Protection Agency (EPA), including but not
   limited to:

   a) Asbestos Hazard Emergency Response Act (AHERA) Regulation:
      Title 40, Part 763, Sub-part E, Code of Federal Regulations

   b) EPA Model Accreditation Plan - Asbestos Containing Materials Final
      Rule & Notice: Title 40, Part 763, Sub-part E, Appendix C, Code of
      Federal Regulations

   c) National Emission Standard for Hazardous Air Pollutants (NESHAPS)
      National Emission Standard for Asbestos:
      Title 40, Part 61, Sub-part A, and Sub-part M (Revised Sub-part B), Code
      of Federal Regulations

   d) Public Law 101-500:
      (Safe Transportation of Food Act Requires the use of dedicated vehicles
      to haul asbestos and other dangerous waste preventing backhauling).

   e) Resource Conservation and Recovery Act (RCRA):
      Subtitle C - hazardous lead abatement waste
      Subtitle D - non-hazardous lead abatement waste

   f) Toxic Substance Control Act (TCSA):
      Title IV, Lead Exposure Reduction.

Note: The Title X, the Residential Lead-Based Paint Hazard Reduction
Act of 1992 amends the above and contains all the EPA mandates for the
regulation of LBP activities as defined by the Title. Under Section
402(a)(1) of TSCA, EPA is developing new disposal standards for LBP
waste. As of 1995, the current intent of EPA is to temporarily defer the
regulation of Consultantural components from RCRA to the TSCA regulation, where no RCRA requirements would apply (e.g. TCLP testing, transport requirements, etc.). The TSCA regulations would mandate no co-disposal of LBP Consultantural components with municipal or other acidic/putrescible industrial wastes. This would likely lead to the disposal of components in construction and demolition landfills, which do not accept municipal waste. The contractor shall contact the CDPHE prior to disposal to verify the current status of the disposal of Consultantural components from LBP activities.

D) State Requirements which govern:

1) Asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

a) CDPHE Air Pollution Control Division, Regulation No. 8, as applicable.

   i) Licensing of asbestos abatement contractors and certification of asbestos abatement workers, and abatement project supervisors.

   ii) Waste Manifest Form for Transport of ACM, (requires submittal within 10 days).

b) CDPHE Solid and Hazardous Waste Division, Regulations Pertaining To Solid Waste Sites and Facilities, 6 CCR 1007-2, Part 1, including Section 5.5 - Asbestos Waste Disposal.


E) Other Codes and Related Documents

1) Uniform Building Code
2) Uniform Fire Code
3) Denver Building code Amendments
4) General Conditions of the Contract (GCC) as referred to the City and County of Denver’s “Orange Book”.

F) Local Requirements: Refer to the VCUP Application

1.3.1 STANDARDS:

A) General Applicability of Standards: Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable
standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

B) Contractor Responsibility: The contractor shall assume full responsibility and liability for the compliance with all standards pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The contractor shall hold the Owner, Project Manager, and Owner's Representative harmless for failure to comply with any applicable standard on the part of himself, his employees, or his subcontractors.

C) Standards: which apply to asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

1) American National Standards Institute (ANSI)
   1430 Broadway
   New York, New York 10018
   (212) 354-3300
   a) Fundamentals Governing the Design and Operation of Local Exhaust Systems Publication Z9.2-79
   b) Practices for Respiratory Protection Publication Z88.2-80

2) American Society for Testing and Materials
   1916 Race Street
   Philadelphia, PA 19103
   (215) 299-5400
   a) Safety and Health Requirements Relating to Occupational Exposure to Asbestos E 849-82

3) OSHA Standards:

   Effective Date: July 5, 1994.
1.4 NOTICES:

A) U.S. ENVIRONMENTAL PROTECTION AGENCY. The Contractor shall send written notification as required by USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations 40 CFR 61, Subpart M.

REGION 8
EPA Region VIII Office
999 18th Street
Denver Place, Suite 500
Denver, CO 80202-2405
Attn: Regional Asbestos Coordinator
(303) 293-1730

1) Notification: Use notification form found in Section 30. The State of Colorado has its own NESHAP coordinator. Send notification to the following address at least 10 days prior to beginning any work on asbestos-containing materials:

CDPHE Air Pollution Control Division
4300 Cherry Creek Drive South
Denver, CO 80222-1530
Telephone: 303-692-3150

B) COLORADO DEPARTMENT OF PUBLIC HEALTH and ENVIRONMENT. The Contractor shall comply with all reporting and notification requirements of the Colorado Department of Public Health and Environment:

24-hour Emergency Response Line (877) 518-5608
Colorado Department of Public Health and Environment (303) 692-2000
(CDPHE) toll-free (800) 886-7689
Hazardous Materials and Waste Management Division (303) 692-3300
(HMWMD) toll-free (888) 569-1831
HMWMD Technical Assistance Line (303) 692-3320
National Response Center (800) 424-8802

C) Occupational, Safety, and Health Administration. Send a copy of evaluation and certification of alternative work procedures to the national office of OSHA, Office of Technical Support, Room N3653, 200 Constitution Avenue NW, Washington, DC 20210 before work which involves the removal of more than 25 linear or 10 square feet (7.5 linear meters or 3 square meters) of thermal system insulation or surfacing material is begun using an alternative method.
1.5 **STATE AND LOCAL AGENCIES:**

The contractor shall send written notification as required by state and local regulations prior to beginning any work on asbestos-containing materials.

1.6 **PERMITS:**

A) Permit (where required-verify): All asbestos containing waste is to be transported by an entity maintaining a current "Industrial waste hauler permit" specifically for asbestos-containing materials, as required for transporting of waste asbestos-containing and lead-containing materials to a disposal site.

B) The contractor shall make all required notices and obtain all required asbestos permits from the State of Colorado.

C) The contractor is responsible for obtaining any demolition, building, renovation or other permits, and for paying application fees, if any, where required by State or Local jurisdictions.

1.7 **LICENSES:**

Maintain current licenses as required by applicable state or local jurisdictions for the removal, transporting, disposal or other regulated activity relative to the work of this contract.

A) Denver Contractor's License

B) CDPHE Asbestos Abatement Contractor's Certificate (GAC)

1.8 **POSTING AND FILING OF REGULATIONS:**

Post all notices required by applicable federal, state and local regulations. Maintain two (2) copies of applicable federal, state and local regulations and standards. Maintain one copy of each at job site. Keep on file in the contractor's office one copy of each.

1.9 **DOCUMENTATION SUBMITTALS:**

Before Start of Work: Submit a copy of the following to Monitoring Firm, Owner, and Consultant for documentation.

A) Permits, Licenses, and Certificates: Submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of
the Work.

B) Notices: Submit notices required by federal, state and local regulations together with proof of timely transmittal to agency requiring the notice.

C) Permits: Submit copies of current valid permits required by state and local regulations.

D) Licenses: Submit copies of all State and local licenses and permits necessary to carry out the work of this contract.

E) Worker Certifications: Submit copies of all asbestos worker and supervisor certifications.

1.10 NOTICES:

A. Not fewer than ten (10) working days prior to commencement of Work, notify, in writing all applicable state and local government regulatory agencies, to include:

1. Colorado Department of Public Health and Environment, Air Pollution Control Division, 4300 Cherry Creek Drive South, Denver, Colorado 80222-1530.

2. Regional Administrator, USDOL/OSHA/FB, 1961 Stout St., Room 1554, Denver, Colorado 80294

3. Denver Department of Environmental Health, 1391 Speer Blvd., Suite 700, Denver, Colorado 80204-2558

4. Notification: Include the following information in the notification sent to the Colorado Department of Public Health and Environment:

   a. Name and address of City or operator.

   b. Description of the work including the size, age, and prior use of the area.

   c. Estimate of the approximate amount of ACS in the area in terms of soil.

   d. Location of the work area being abated.

   e. Scheduled starting date and completion dates of the remediation.

   f. Nature of planned work and method(s) to be used.
g. Procedures to be used to comply with the requirements of USEPA National Emission Standards for Hazardous Air Pollutants, and VCUP.

h. Name and location of the waste disposal site where the ACS waste material will be deposited

i. For facilities being demolished under an order of a state or local government agency, issued because the facility is structurally unsound and in danger of imminent collapse, the name, title, and authority of the state or local government agency representative who has ordered the demolition.

j. File a Notification for Removal and Disposal of Asbestos-Containing Material, to include an estimated quantity of waste and schedule of disposal with the operator DADS selected as required by 40 CFR Section 61.146(c). The City will submit the Waste Profile sheets and supply preprinted manifests to the Contractor.

5. Denver Fire Department

6. Denver Police Department

1.11 LICENSES AND CERTIFICATIONS

A. Asbestos Licenses and Certifications: Obtain and maintain throughout project, current licenses as required by applicable state or local jurisdictions for the removal, transporting, disposal or other regulated activity relative to the Work of this contract. Proof of State of Colorado required certifications shall be maintained in accordance with Colorado Regulation No. 8 and 6CCR 1007-2 as applicable.

B. Posting and Filing or Regulations: Maintain two (2) copies of applicable federal, state and local regulations above. Post one copy of each at the job site. Keep on file in the contractor's office one copy of each.

C. Have at all time in possession at the Contractor's field office (one copy) and in view at the job site (one copy), OSHA Regulation 29 CFR part 1910 Section 1910.1001 (Toxic and Hazardous Substances-Asbestos, Tremolite, Anthophylite, and Actinolite), and Section 1926.58 (Occupational Health and Environmental Controls-Asbestos, Tremolite, Anthophyllite, and Actinolite; EPA Regulation 40 CFR Sections 61.140-85-024, Guidance For Controlling Asbestos-Containing Material In Buildings; and Colorado Department of Health Regulation No.8 of the Air Pollution Control Divisions, 5 C.C.R. 1001.10 and 6CCR 1007-2.
1.12 SUBMITTALS:

Before Start of Work: Submit the following to the Project Manager for review. No Work shall begin until these submittals are returned with Project Manager approval.

A. Submit proof satisfactory to the Project Manager that all required permits, disposal site locations and arrangements for transport and disposal of asbestos-containing material supplies and the like have been obtained.

B. The contractor shall provide a written Plan of Action in accordance with OSHA 29 CFR 1926.1101, Appendix F, Planning the Removal Project. The Plan of Action shall include a signed statement from the contractor indicating that he has a clear and complete understanding of the design intent, Scope of Work and Work methods for the project. Submit to the Project Manager a description in written and drawing form the plan for construction of all decontamination areas and for isolation of the Work Areas in compliance with this specification and applicable regulations.

C. Submit proof satisfactory to the Project Manager and the City that all employees have had instruction on the hazard of asbestos exposure, on use and fitting or respirators, on personal protective equipment, on use of showers, on entry and exit for the Work Area, and on all aspects of Work procedures and protection measures. Provide "Employee Release" forms for each employee who will Work inside the Work Area and proof that the general superintendent is experienced and qualified in asbestos removal and supervision.

D. Submit written emergency procedures for an asbestos spill.

E. Provide the name, address, experience and qualifications of the Air Monitoring Specialist and Laboratory to be used for OSHA personal monitoring on this project.

F. Furnish one copy of the transportation company's manifest or receipt from the dump site operator reflecting when and where asbestos waste was delivered.

G. Submit Site Specific Health and Safety Plan.

H. No Work shall begin until all submittals referenced in this document have been received and accepted by the Project Manager.

1.13 CONTRACTOR QUALITY CONTROL RESPONSIBILITIES

A. For the purpose of all OSHA and all other applicable regulations, the contractor shall be considered the employer of all workers, agents, representatives and contractors hired by the contractor to perform any Work under this project. The contractor shall further assume full responsibility and liability for all federal, state, and local regulations, including, but not limited to, all applicable OSHA, EPA and DOT regulations,
pertaining to protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The contractor shall provide medical examinations and maintain medical records for personnel as required by all applicable federal, state, and local regulations.

B. The contractor shall fully comply with all federal, state and local regulations, including but not limited to, all applicable OSHA and EPA regulations pertaining to the City and the Operator of a building from which asbestos is to be removed. The contractor shall indemnify and hold the City, the Project Manager, and the Owner’s Representative harmless for failure to comply with any applicable Work, hauling, disposal, safety, health and environmental regulations, including, but not limited to, all applicable OSHA and EPA regulations on the part of himself, his agents, representatives and employees, as well as his Contractors.

C. The contractor shall perform Work called for in Section 02081 and as shown on accompanying drawings in accordance with EPA regulation 40 CFR 61. These standards define procedures for stripping and removing friable sprayed asbestos fireproofing and insulation material and requires EPA notification that such removal is to take place. The required Work practices include labeling and disposal of removed materials in an approved sanitary landfill.

D. The contractor shall perform Work called for in Section 02081 and as shown on accompanying drawings in accordance with OSHA regulation 29 CFR 1926.1101. These standards for occupational exposure define permissible exposure limits, methods of compliance with regulations, personal protective equipment including clothing and respiratory protection, methods of measurement of airborne asbestos fibers, signs and labels warning of asbestos hazard, housekeeping methods for fiber control and waste disposal, recordkeeping for monitoring and exposure, and medical examinations.

E. The contractor shall perform Work called for in Section 02081 and as shown on accompanying drawings in accordance with Colorado Regulation No. 8. and 6CCR 1007-2

END OF SECTION 01092
SECTION 01410

PROJECT OVERSIGHT

AIR MONITORING - TEST LABORATORY SERVICES

1 SCOPE

1.1 GENERAL: The following sections govern work for this project.

Air Monitoring: during work area clearance is described in the section below entitled Work Area Clearance.

1.2 DESCRIPTION OF THE WORK: This section describes air monitoring carried out by the owner to verify that the outside environment remains uncontaminated. This section also sets forth airborne fiber levels both inside and outside the work area as action levels, and describes the action required by the contractor if an action level is met or exceeded.

A) Air monitoring required by OSHA is work of the contractor and is not covered in this section.

B) The Owner will pay for a maximum number of 5 consecutive 8 hour days of time (Monday-Friday of each week), excluding City recognized holidays. All time required by the Air Monitoring Firm beyond that called for herein will be back charged to the contractor by deducting said time from the contractor's payment request and the Owner will pay the Air Monitoring Firm from these moneys.

1. The contractor shall request this extended oversight in writing a minimum of 24 hours in advance of the time when the extended coverage is required. Costs for the extended coverage shall include labor, materials, equipment, supervision, and expenses for the coverage period. The contractor shall acknowledge these costs in its request for extended coverage. In the event that the contractor requests extended coverage and is not ready or cancels less than 8 hours prior to the extended coverage period, the contractor will be charged a minimum of 4 hours of labor, equipment, materials, and any expenses incurred.

Oversight coverage is required for all periods when the contractor is on site. The staffing, equipment, materials, and expenses of the coverage and extended coverage shall be determined solely by the City.

In addition to the other remedies and liquidated damage expenses, the City shall retain costs for providing extended coverage from payment applications.

Should the contractor require oversight coverage beyond the period identified in the original schedule, as modified by fully executed Change
Orders, this coverage shall be considered as extended coverage costs at no additional cost to the City.

1.3 AIR MONITORING FIRM OBLIGATIONS:

A) Air monitoring according to the Asbestos Project Design shall be provided by the Project Manager or Industrial Hygiene Firm.

B) Air monitoring performed by the Project Manager for the City of Denver or for the Abatement Contractor shall be performed by a qualified and properly trained Air Monitoring Specialist.

C) Project Manager’s Air Monitoring Specialist shall conduct all background, environmental and air sampling required by this project. All final visual inspections shall be conducted by the Project Manager or his designated representative.

1.4 AIR MONITORING BY THE OWNER:

A) Work Area Isolation: The purpose of the Owner's air monitoring is to detect faults in the work area isolation such as:

   1) Contamination of the building outside of the work area with airborne asbestos fibers,
   2) Contamination of air outside the building envelope by airborne asbestos fibers.

B) Should any of the above occur immediately cease asbestos abatement activities until the fault is corrected. Do not recommence work until authorized by the Project Manager.

C) Work area Airborne Fiber Count: The Owner may monitor airborne fiber counts in the Work Area. The purpose of this air monitoring will be to detect airborne asbestos concentrations which may challenge the ability of the Work Area Isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers.

D) The Owner will be conducting air monitoring throughout the course of the project, when ACM is being disturbed.

E) Work area clearance (asbestos): To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to an acceptable level, the Owner will sample and analyze air samples.

1.5 FIBERS AND STRUCTURES: Fibers Counted: The following procedure will be used
to resolve any disputes regarding fiber types when a project has been stopped due to excessive airborne fiber counts.

A) Large Fibers: "Airborne Fibers" referred to above include all fibers regardless of composition as counted by phase contrast microscopy (PCM), unless additional analysis by transmission electron microscopy demonstrates to the satisfaction of the Consultant that non-asbestos fibers are being counted. "Airborne Fibers" counted in samples analyzed by transmission electron microscopy (TEM) shall be asbestos fibers, greater than 5 microns in length. [For purposes of stop action levels, subsequent to analysis by electron microscopy, the number of "Airborne Fibers" shall be determined by multiplying the number of fibers, regardless of composition counted by PCM, the proportion of fibers that are asbestos as determined by TEM (a number equal to, asbestos fibers counted, divided by all fibers counted in the electron microscopy analysis).]

B) Small Structures: "Airborne Fibers" referred to above include asbestos structures (fibers, bundles, clusters or matrices) of any diameter and any length greater than 0.5 microns.

1.6 ANALYTICAL METHODS: The following methods will be used by the Owner in analyzing filters used to collect air samples. Sampling rates may be varied from printed standards to allow for high volume sampling.

A) Phase Contrast Microscopy (PCM) will be performed using the NIOSH 7400 method.

B) Transmission Electron Microscopy (TEM) will be performed using the analysis method set forth in the AHERA regulation 40 CFR Part 763 Appendix A.

1.7 SCHEDULE OF AIR SAMPLES BY OWNER:

A) Sample cassettes: Samples will be collected on 25 mm. cassettes as follows:

1) PCM: 0.8 micrometer mixed cellulose ester.
2) TEM: 0.45 micrometer mixed cellulose ester or 0.40 micrometer polycarbonate, with 5.0 micron mixed cellulose ester backing filter.

B) Number and Volume of Samples: The number and volume of air samples given in the schedules is approximate. The exact number and volume of samples collected by the Owner may vary depending upon job conditions and the analytical method used. The samples collected for TEM will be submitted for analysis by the Owner’s ACM oversight contractor.

1) Sampling Calculations:

a) For purposes of this specification, the sample volume calculated below
will be considered to be of sufficient size so that there is a 95% level of confidence that the value measured by each individual sample at the limit of detection (LOD) is less than or equal to the limit values specified below.

b) For purposes of this specification, the Limit of Detection (LOD) is defined as 7 fibers/mm² on the filter or 5 fibers/100 fields.

c) For purposes of this specification overloaded samples will be considered as exceeding the applicable limit value.

2) TEM: Analytical Sensitivity of 0.05 structures/mm² as set forth in the AHERA regulation.

C) Base Line Samples:
   1) Before Start of Work: The Owner’s ACM oversight contractor will secure air samples to establish a base line. This will be accomplished at the same time as the Pre-Construction Conference.

   2) PCM Samples (see schedule below)

<table>
<thead>
<tr>
<th>Location Sampled</th>
<th>PCM</th>
<th>Analysis Method</th>
<th>Limit Value (Fibers/cc)</th>
<th>Minimum Volume (Liters)</th>
<th>Rate (Minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Each Work Area Phase</td>
<td>PCM</td>
<td>0.01</td>
<td>&lt;1,200&gt;</td>
<td>1-12</td>
<td></td>
</tr>
</tbody>
</table>

3) Base Line: a level expressed in fibers per cubic centimeter which is twenty-five percent greater than the largest of the following:

   1) Average of the PCM samples collected outside each Work Area
   2) Average of the PCM samples collected outside the building
   3) 0.01 fibers per cubic centimeter

4) Samples collected for TEM analysis will be held without analysis. These samples will be analyzed under the conditions and terms set forth in "Fibers Counted" and “Effect On Contract Sum”.

D) Daily (each 8 hour work shift):

   1) From start of work through the work Project.
2) Sample volume and sensitivity: inside the work area may vary depending upon conditions in the work area. If samples are overloaded at the sample volume required for a limit value equal to the "Stop Action Levels" or "Immediate Stop Action Levels" given later in this section, the level is considered to have been exceeded.

3) PCM Samples:

<table>
<thead>
<tr>
<th>Location Sampled</th>
<th>Number of Samples</th>
<th>Analysis Method</th>
<th>Limit Value (Fibers/cc)</th>
<th>Minimum Volume (Liters)</th>
<th>Rate (Liters/Minute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each Work Area</td>
<td>2</td>
<td>PCM</td>
<td>0.01</td>
<td>&lt;1,200&gt;</td>
<td>1-12</td>
</tr>
<tr>
<td>Outside Area</td>
<td>4</td>
<td>PCM</td>
<td>0.01</td>
<td>&lt;1,200&gt;</td>
<td>1-12</td>
</tr>
</tbody>
</table>

E) Additional samples may be taken at the Owner's, the Project Manager's or the ACM oversight contractor’s discretion. If airborne fiber counts exceed allowed limits additional samples will be taken as necessary to monitor fiber levels.

1.8 LABORATORY TESTING BY OWNER:

The services of a testing laboratory will be employed by the Owner’s oversight contractor to perform laboratory analysis of the air samples. A microscope and technician may be setup at the job site, so that verbal reports on air samples can be obtained immediately. A complete record of all air monitoring and results will be furnished to the ACM oversight contractor, the Owner, and the contractor. Written Reports of all air monitoring tests will be posted at the job site on a daily basis.

1.9 ADDITIONAL TESTING:

The contractor may conduct air monitoring and laboratory testing. If the contractor elects to do this, the cost of such air monitoring and laboratory testing shall be at no additional cost to the Owner.

1.10 PERSONAL MONITORING (ASBESTOS):
1) Owner will not be performing air monitoring to meet Contractor's OSHA requirements for personal sampling or any other purpose.

2 EXECUTION

A. STOP ACTION LEVELS (ASBESTOS):

1) Inside Work Area: Maintain an average airborne count in the Work Area of less than 0.5 fibers per cubic centimeter. If the fiber counts rise above this figure for any sample taken, revise work procedures to lower fiber counts. If the Time Weighted Average (TWA) fiber count for any work shift or 8 hour period exceeds 0.5 fibers per cubic centimeter, stop all work, leave and notify Project Manager. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Project Manager. If airborne fiber counts exceed 0.01 fibers per cubic centimeter inside the clean room or outside the area, cease all work except corrective action until fiber counts fall below 0.01 fibers per cubic centimeter and notify Project Manager. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Project Manager. Any work stoppage caused by fiber counts exceeding the standards shall be considered as defective work requiring correction by the contractor at no additional cost or time extensions to the City.

2) Outside Work Area: If any air sample taken outside of the Work Area exceeds the base line established above, but in no case greater than 0.01 f/cc, immediately and automatically stop all work except corrective action. The Project Manager will determine the source of the high reading and so notify the Contractor and Consultant in writing.

a) If the high reading was the result of a failure of Work Area isolation measures initiate the following actions:

i) Decontaminate the affected area in accordance with the Section entitled Cleaning & Decontamination Procedures.

ii) Require that respiratory protection as set forth in Section 01562 Respiratory Protection be worn in affected area until area is cleared for re-occupancy in accordance with the Section entitled Work Area Clearance.

iii) If the exit from the clean room of the personnel decontamination unit enters the affected area, establish a decontamination facility consisting of a Shower Room and Changing Room as set forth in the Section entitled Decontamination Units at entry point to affected area.

b) If the high reading was the result of other causes initiate corrective action as determined by the Consultant.
3) Effect on Contract Sum: Complete corrective work required due to high airborne fiber counts caused by the contractor's activities, will be at the contractor’s expense. The Contract Sum and schedule will be adjusted for additional work caused by high airborne fiber counts beyond the contractor's control. All sampling required by high airborne fiber concentrations caused by the contractors activities will be back charged to the contractor. If high airborne fiber concentrations are detected in the clean room or visible debris is discovered in the clean room, then the fees associated with additional testing and laboratory analysis will be borne by the contractor, at no additional cost to the City.

4) If additional work caused by high fiber counts beyond the contractor's control requires an adjustment to the contract sum and/or schedule, a change order shall be approved in advance of completing any additional work or extension of time that is not an emergency situation.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.0 ADDITIONAL TESTING:

A. The contractor will conduct OSHA compliance (personal) air monitoring of the contractor's Work force and associated laboratory testing. The cost of such air monitoring and laboratory testing shall be included in the contractor's Contract Sum. Air monitoring results shall be available prior to the next Work shift.

B. Inside Work Area: At any time the Project Manager may elect to run an air test inside the Work Area. The contractor shall maintain an average airborne count in the Work Area of less than 0.5 fibers per cubic centimeter. If the fiber counts rise above this figure for any sample taken, the Contractor will revise Work procedures to lower fiber counts.

3.1 PERSONAL MONITORING:

Perform personal air monitoring as required to meet OSHA Requirements for determination of full shift Time Weighted Average (TWA) and Excursion Limit fiber counts for types of respiratory protection provided. It is the responsibility of the Contractor to perform air monitoring of the Contractor's Work force to meet these OSHA requirements.

3.2 ENVIRONMENTAL TESTING:

Project Manager may conduct daily monitoring outside the Work Area, in the clean room, and at the exhaust of the negative air units.
3.3 CLEARANCES: Will be based on visual inspections

END OF SECTION 01410
SECTION 01560

WORKER PROTECTION - ASBESTOS ABATEMENT (Removal)

PART 1 - GENERAL

1.0 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Special Contract Conditions and other Specification sections, apply to Work of this section.

1.1 DESCRIPTION OF WORK:

This section describes the equipment and procedures required to protecting workers against asbestos contamination and other workplace hazards except for respiratory protection.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

Respiratory Protection: is specified in Section 01562.

1.3 WORKER TRAINING:

Train, in accordance with 29 CFR 1926, all workers in the dangers inherent in handling asbestos and breathing asbestos fibers/dust and in proper Work procedures and personal and area protective measures. Provide and maintain evidence of training and licensure as required by the Colorado Department of Public Health and Environment.

1.4 MEDICAL EXAMINATION:

Provide medical examinations: Provide medical examination for all workers who will enter the Work Area for any reason. Examination shall, as a minimum, meet OSHA requirements set forth in 29 CFR 1926.

1.5 SUBMITTALS:

A. Before Start of Work: Submit the following to the Project Manager for review. Do not start Work until these submittals are returned with Project Manager's approval.

B. Certificate of Worker Acknowledgment: Submit an original signed copy of the Certificate of Worker's Acknowledgment found at the end of this section, for each worker who is to be at the job site or enter the Work Area.

C. Report from Medical Examination: Conducted within last 12 months as part of compliance with OSHA medical surveillance requirements for each worker who is to enter the Work Area. Submit, at a minimum, for each worker the following:
Name and Social Security Number,

Physicians Written Opinion from examining physician including at a minimum the following:

1. Whether worker has any detected medical conditions that would place the worker at an increased health risk from exposure to asbestos;

2. Any recommended limitations on the worker or on the use of personal protective equipment such as respirators; and,

3. Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.

Copy of information that was provided to physician in compliance with 29 CFR 1926.1101.

Statement that worker is able to wear and use the type of respiratory protection proposed for the project, and is able to Work safely in an environment capable of producing heat stress in the worker.

D. Letter of Compliance: Submit letter of compliance signed by an officer of the abatement contracting firm and notarized that exposure measurements, medical surveillance, and worker training records are being kept in conformance with 29 CFR 1926.

PART 2 - EQUIPMENT

2.0 PROTECTIVE CLOTHING:

A. Coveralls: Provide disposable full-body coveralls and disposable head covers, and require that they be properly worn by all workers at all times while in the Work Area. Provide a sufficient number for all required changes, for all workers in the Work Area.

B. Boots: Provide Work boots with non-skid soles, and where required by OSHA, special foot protection, for all workers. Provide boots at no cost to workers. Do not allow boots to be removed from the Work Area for any reason, after being contaminated with asbestos containing material unless properly protected.

C. Hard Hats: Provide head protection (hard hats) as required by OSHA for all workers. Require hard hats to be worn at all times that Work is in progress that may potentially cause head injury. Provide hard hats with plastic strap type suspension.
D. Face Shields/Goggles: Provide eye protection as required by OSHA for all workers involved in scraping, spraying, or any other activity which may potentially cause eye injury.

E. Gloves: Provide appropriate Work gloves to all workers and require that they be worn at all times in the Work Area. Do not remove gloves from Work Area. Dispose gloves as asbestos contaminated waste at the end of the Work.

2.1 ADDITIONAL PROTECTIVE EQUIPMENT:

A. Disposable coveralls, head covers, eye protection and footwear covers shall be provided by the Contractor for the City, Project Manager, and other authorized representatives who may inspect the job site.

B. Provide steel-toed rubber boots, insulated clothing, hard hats, and/or other equipment to Work crew to complete the Work.

PART 3 - EXECUTION

3.0 GENERAL:

A. Provide worker protection as required by the most stringent OSHA standards applicable to the Work. The following procedures are minimums to be adhered to regardless of fiber count in the Work Area.

B. Each time Work Area is entered remove all street clothes in the Changing (Clean) Room of the Personnel Decontamination Unit and put on new disposable coverall, new head cover, and a clean respirator. Proceed through Shower Room to Equipment (Dirty) Room and put on Work boots.

3.1 DECONTAMINATION PROCEDURES:

A. Require all workers to adhere to personal decontamination procedures whenever they leave the Work Area, if necessary:

3.2 WITHIN WORK AREA:

Require that workers NOT eat, drink, smoke, apply cosmetics, chew gum or tobacco in the Work Area. To eat, chew, drink or smoke, workers shall follow the procedure described above, then dress in street clothes before entering the non-Work Areas of the building.

END OF SECTION 01560
SECTION 01562

RESPIRATORY PROTECTION

PART 1 - GENERAL

1.0 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Special Contract Conditions and Specification sections, apply to Work of this section.

1.1 DESCRIPTION OF WORK:

Instruct and train each worker involved in asbestos abatement or maintenance and repair of friable asbestos containing materials in proper respiratory use and require that each worker always wear a respirator, properly fitted on the face in the Work Area from the start of any operation which may cause airborne asbestos fibers until the Work Area is completely decontaminated. Use respiratory protection appropriate for the fiber level encountered in the Work place or as required for other toxic or oxygen-deficient situations encountered.

1.2 STANDARDS:

Except to the extent that more stringent requirements are written directly into the Contract Documents, the following regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Document, or as if published copies were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, meet with more stringent requirement.

OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1910, Section 1001 and Section 1910.134. 29 CFR 1926.


NIOSH - National Institute for Occupational Safety and Health
1.3 SUBMITTALS:

A. Before Start of Work submit the following to the Project Manager for review. Do not begin Work until these submittals are returned with the Project Manager's acceptance;

1. Product Data: Submit manufacturer's product information for each component used, including NIOSH and MSHA Certifications for each component in an assembly and/or for entire assembly;

2. System Diagram: When a Type "C" supplied air respiratory system is required by the Work, submit drawing showing assembly of components into a complete supplied air respiratory system. Include diagram showing location of compressor, filter banks, backup air supply tanks, hose line connections in Work Area(s), routing of air lines to Work Area(s) from compressor;

3. Operating Instruction: Submit complete operating and maintenance instructions for all components and system as a whole. Submittal is to be in bound manual form suitable for field use;

4. Respiratory Protection Program: submit level of respiratory protection intended for each operation required by the project. Submit this information on the "Respiratory Protection Program" form at the end of this section;

5. Initial Exposure Assessment/Historic Airborne Fiber Data: Submit airborne asbestos fiber count data to substantiate selection of respiratory protection proposed. Refer to OSHA 29 CFR 1926.1101(f)(2)(iii). Data submitted shall include at least the following for each procedure required by the Work;

   a. Date of measurements

   b. Operation monitored (i.e.--removal, cleaning, bag-out, etc.)

   c. Type of air sample collected (i.e.--8 hr. TWA personal or excursion)

   d. Type of material removed (i.e.--spray applied surfacing, towel applied surfacing, thermal system insulation, miscellaneous friable material, etc.)

   e. Asbestos content and type of material removed (i.e.--% amosite, % chrysotile, % crocidolite, etc.)
f. Description of engineering controls and Work practices being utilized (i.e.--wet methods, negative air, glove bag, etc.)
g. Sampling and analytical methods used and evidence of their accuracy.
h. Number, duration, and results of samples taken
i. Name, address, and phone number of air monitoring firm
j. Name and signature of I.H. professional and/or technician who collected the samples

6. Resume information: Submit resume and information on training for individual monitoring the operation of supplied air respiratory systems. Submit training certifications where applicable.

1.4 DELIVERY:

Deliver replacement parts, etc., not otherwise labeled by NIOSH or MSHA to job site in manufacturer's containers.

PART 2 - EQUIPMENT

2.0 AIR PURIFYING RESPIRATORS:

A. Respirator Bodies: Provide half-face type respirators. Equip full face respirators with a nose cup or other anti-fogging device as would be appropriate for use in air temperatures less than 32 degrees Fahrenheit.

B. Filter Cartridges: Provide, at a minimum, HEPA type filters labeled with NIOSH and MSHA Certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including asbestos containing dusts and mists" and color coded in accordance with ANSI Z228.2 (1980). In addition, a chemical cartridge section may be added, if indicated on MSDS or if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH/MSHA Certification.

C. Non-permitted respirators Do not use single use, disposable or quarter face respirators.
PART 3- EXECUTION

3.0 GENERAL:


B. Require that respiratory protection be used at all times that there is any possibility of disturbance of asbestos containing materials whether intentional or accidental.

C. Require that a respirator be worn by anyone in a Work Area at all times, regardless of activity (e.g. set-up), during a period that starts with any operation which could cause airborne fibers until the area has been cleared in accordance with Section 01714.

D. Regardless of Airborne Fiber Levels: Require that the minimum level of respiratory protection to be used is at least half face, negative pressure respiration.

E. Do not allow the use of single-use or disposable respirators for any purpose.

3.1 FIT TESTING:

A. Fitting: Provide evidence of fit testing in accordance with OSHA 1926.1101.

B. Upon Each Wearing: Require that each time an air-purifying respirator is put on, it be checked for fit with a positive and negative pressure fit test in accordance with the manufacturer's instructions of ANSI Z288.2 (1980).

3.2 TYPE OF RESPIRATORY PROTECTION REQUIRED:

A. Provide Respiratory Protection as indicated below based upon the actual or data collected for initial exposure assessment. Choose respiratory protection, at minimum, which provides for a greater degree of protection than required by the exposure level. If at any point during the Work the exposure level exceeds the limits of the respiratory protection, the Work shall stop immediately and respiratory protection will be upgraded prior to Work resuming or alteration of Work practices. Minimum respiratory protection for any and all abatement removal activities shall be half face, negative pressure respirators.

3.3 PERMISSIBLE EXPOSURE LIMIT (PEL):

8-Hour Time Weighted Average (TWA) of asbestos fibers to which any worker may be exposed shall not exceed the following:
PEL/TWA = 0.1 fiber/cubic centimeter

3.4 **RESPIRATORY PROTECTION FACTOR:**

<table>
<thead>
<tr>
<th>Respirator Type</th>
<th>Protection Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air purifying:</td>
<td>10</td>
</tr>
<tr>
<td>Negative pressure respirator</td>
<td></td>
</tr>
<tr>
<td>High efficiency filter</td>
<td></td>
</tr>
<tr>
<td>Half facepiece</td>
<td></td>
</tr>
<tr>
<td>Air purifying:</td>
<td>10</td>
</tr>
<tr>
<td>Negative pressure respirator</td>
<td></td>
</tr>
<tr>
<td>High efficiency filter</td>
<td></td>
</tr>
<tr>
<td>Full facepiece</td>
<td></td>
</tr>
<tr>
<td>Powered-air purifying (PAPR):</td>
<td>100</td>
</tr>
<tr>
<td>Positive pressure respirator</td>
<td></td>
</tr>
<tr>
<td>High efficiency filter</td>
<td></td>
</tr>
<tr>
<td>Half or Full Facepiece</td>
<td></td>
</tr>
<tr>
<td>Type C supplied air:</td>
<td>100</td>
</tr>
<tr>
<td>Positive pressure respirator</td>
<td></td>
</tr>
<tr>
<td>continuous-flow</td>
<td></td>
</tr>
<tr>
<td>Half or full facepiece</td>
<td></td>
</tr>
<tr>
<td>Type C supplied air:</td>
<td>1000</td>
</tr>
<tr>
<td>Positive pressure respirator</td>
<td></td>
</tr>
</tbody>
</table>
pressure demand
Full facepiece

Type C supplied air: over 1000
Positive pressure respirator
Pressure demand
Full facepiece
Equipped with an auxiliary positive pressure
Self-contained breathing apparatus (SCBA)

Self-contained breathing apparatus (SCBA): over 1000
Positive pressure respirator
Pressure demand
Full facepiece

END OF SECTION 01562
SECTION 01563
DECONTAMINATION UNITS

PART 1 - GENERAL

1.0 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Special Contract Conditions and other Specification sections, apply to Work of this section.

1.1 DESCRIPTION OF WORK:

The contractor may be required to provide separate personnel and equipment decontamination facilities. Require that the Personnel Decontamination and if needed exit the Work Areas into the Equipment Decontamination Unit.

PART 2 - PRODUCTS

2.0 REMOTE DECONTAMINATION UNIT

A. Filters: Provide cascaded filter units on drain lines from showers or any other water source carrying asbestos contaminated water from the Work Area. Provide units with disposable filter elements as indicated below. Connect so that discharged water passes primary filter and output of primary filter passes through secondary filter.

   Primary Filter - Pass particles 20 microns and smaller
   Secondary Filter - Pass particles 5 microns and smaller

Wastes to be discharged to site sewer systems must be filtered to 1 Micron.

B. Disposal of Waste Water: Contractor shall provide hoses or portable tanks for transporting waste water from collection facilities to the Project Manager specified sanitary sewer manhole, which may be remote from individual building location.

PART 3 - EXECUTION

3.0 GENERAL:

3.1 CLEANING OF DECONTAMINATION UNITS:

If the remote decon is used, the contractor shall clean debris and residue from inside of Decontamination Units on a daily basis or as otherwise indicated in this document or on contract drawings. Damp wipe or hose down all surfaces after each shift change. Clean debris from shower pans on a daily basis.
If the Changing Room of the Personnel Decontamination Unit (Decon) becomes contaminated with asbestos containing debris, abandon the entire decontamination unit and either erect a new decontamination unit or totally suspend all abatement Work activities, with workers concentrating on the decontamination of the decon. Proper decontamination of decon will be determined by Project Manager.

3.2 SEPARATE FACILITIES:
Where more than 10 workers are expected to be in the asbestos removal area, provide separate shower and changing areas for men and women. Such facilities shall be separate and have visual barriers between them for complete privacy.

3.3 SIGNS:
Warning signs that demarcate the regulated area shall be provided and displayed at each location where a regulated area is established. Signs shall be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. The warning signs required by this section shall bear the following information.

DANGER ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTION CLOTHING ARE REQUIRED IN THIS AREA

END OF SECTION 01563
SECTION 01711

PROJECT DECONTAMINATION

PART 1 - GENERAL

1.0 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Special Contract Conditions and other Specification sections, apply to Work of this section.

1.1 DESCRIPTION OF REQUIREMENTS:

General:

A. Decontamination of the Work Area following asbestos abatement

PART 2 - EXECUTION

2.0 COMPLETION OF ABATEMENT WORK:

A. Asbestos Abatement Work is Complete upon meeting the Work Area clearance criteria and fulfilling the following:

1. Decontaminate and remove all equipment, materials, and debris from the project area.

2. Dispose of all asbestos containing waste material as specified in the contract.

END OF SECTION 01711
SECTION 01714

WORK AREA CLEARANCE

PART 1

1.0 - FINAL VISUAL INSPECTION

1.1 - After the contractor determines that the area is clean and ready for clearance, the CCoD ACM oversight contractor will conduct a visual inspection of the entire project area. The contractor will contact the Project Manager 24 hours in advance to schedule the Final Visual Inspection. If the visual inspection does not pass, the contractor shall clean the entire work area and then it will be re-inspected. The contractor shall request, in writing, any re-visual inspections by the Project Manager and shall include credits for any prior failed inspections that cover the City’s cost of labor, materials and equipment for the failed inspections or tests. The site will be inspected until all of the project area passes inspection.

PART 2

2.0 - SUBSTANTIAL COMPLETION OF ABATEMENT WORK

Asbestos Abatement Work is Substantially Complete upon meeting the requirements of this section and the Section entitled Work Area Clearance, including submission of:

A. Certificate of Visual Inspection

B. Receipts documenting proper disposal of Regulated Asbestos-Containing Material.

END SECTION 01714
SECTION 02081

REMOVAL OF ASBESTOS CONTAINING MATERIALS

PART 1 - GENERAL

1.0 RELATED DOCUMENTS:

Drawings and general provisions of the Project Design, the Contract, including General and Special Contract Conditions and other specification sections apply to work in this section.

PART 2 - EXECUTION

2.0 REGULATED AREA:

Set up regulated area according to the following Sections:

A. Support Zones
B. Decontamination Units
C. Exclusion Zone

2.1 WORKER PROTECTION:

Before beginning Work with any material for which a Material Safety Data Sheet has been submitted provide workers with the required protective equipment. Require that appropriate protective equipment be used at all times.

2.2 SCOPE OF WORK

A. – Stone House Farm

Remove and dispose of all asbestos and ACM-containing contaminated materials located in the project areas found during the contractor’s investigation.

END OF SECTION 02081
SECTION 02084
DISPOSAL OF ASBESTOS CONTAINING MATERIAL

PART 1 - GENERAL

1.0 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Special Contract Conditions and other Specification sections, apply to Work of this section.

1.1 DISPOSAL

Friable and non-friable asbestos containing waste material and debris which is packaged in accordance with the provision of this Specification will be disposed of at the Denver Arapahoe Disposal Site.

1.2 SUBMITTALS:

Submit copies of all manifests and landfill receipts to Project Manager on a weekly basis.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.0 GENERAL:

A. Carefully load containerized waste on sealed trucks or other appropriate vehicles for transport. Exercise care before and during transport, to ensure that no unauthorized persons have access to the material.

B. Do not store bagged ACM outside of the Work Area. Take bags from the Work Area directly to a sealed truck or dumpster. Use a lined "Hopper" type for transport of double bagged material to outside truck or dumpster.

C. Do not transport bagged ACM on open trucks. Double bagged material may be transported on open trucks if they are first loaded in sealed drums. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as asbestos containing waste and dispose of in accordance with this specification.

D. Advise the Denver Arapahoe Disposal Site, at least twenty-four hours in advance of transport, of the quantity of material to be delivered.
E. At the Denver Arapahoe Disposal Site, sealed plastic bags must be carefully removed from the truck. If bags are broken or damaged, leave in the truck and clean entire truck and contents using procedures set forth in section 01711 Project Decontamination.

F. Retain receipts from landfill for disposal of materials. All manifests for disposal at DADS will be generated by the City. The City will directly pay disposal costs at DADS when the Denver Generated Manifest is used. Contractor shall bear disposal costs at DADS, at no additional cost to the City if non-Denver Generated Manifests are utilized. Contractors shall transmit the shipper’s copy of the manifest to the city on a weekly basis.

G. Friable, OSHA Category II non-friable asbestos and OSHA Category I non-friable asbestos shall be disposed of at the Denver Arapahoe Disposal Site. The Denver Arapahoe Disposal Site shall handle all non-friable asbestos waste so that it does not become friable

END OF SECTION 02084
SECTION 02086

SPECIAL CONDITIONS - ASBESTOS ABATEMENT (Removal)

PART 1 - GENERAL

1.0 RELATED DOCUMENTS:

   Drawings and general provisions of contract, including General and Special Contract
   Conditions and other Specification sections, apply to Work of this section.

1.1 SPECIAL PROJECT CONDITIONS:

   A. Work Hours: The City will pay for 40 hours per week of oversight. All hours over
      this will be at the expense of the contractor, unless an addendum is issued by the
      Project Manager stating otherwise.

   B. Isolation of Work Area: Contractor shall use barrier tape to isolate Work Area from
      the rest of the Project Area while barriers are being constructed.

   C. Other Emergencies: Notify Project Manager immediately.

   D. Off-Hours Emergencies: The contractor is required to respond within two hours to
      any off-hours emergency. The contractor shall provide the Project Manager with
      key person contact phone numbers prior to starting work.

   E. There shall be no smoking anywhere on the project site. Contractor shall vigorously
      enforce the smoking provisions for all employees, site visitors and sub-contractors.

1.2 SPECIAL PROJECT EQUIPMENT:

   A. Generator:
      The contractor shall provide an on-site generator supplying adequate power for
      completing the project.

   B. Storage Trailer:
      The contractor shall be required to have a lockable storage trailer or dumpster for
      storage of bagged asbestos containing waste located in the Contractor's off-site
      staging area.

   C. Office/Break-room Trailer:
      The contractor shall be required to have an office/lunchroom/break-room trailer
      for use by all workers, supervisors, and foreman, and visits by all other personnel.
The trailer must be equipped with means of communication with workers, as well as all emergency agencies. Communication means must also be available for use by Project Manager. The contractor shall supply own potable water.

D. Two-Way Communications:
The contractor shall provide two-way communications between general superintendent, abatement superintendent, Project Manager and other required parties for the duration of the project. The system shall have a minimum range capable of encompassing all work areas.

E. The contractor shall provide all necessary equipment to tie into water sources located at the site. The closest source of water is located at 120th and Tower Rd. The piping shall be insulated to protect from freezing, if necessary.

F. The contractor shall provide all necessary lighting to complete the project.

G. The contractor shall provide all utilities for the project. Power, water, telephone, and sanitary sewer services are not available at the site.

END OF SECTION 02086
APPENDIX – A

Materials Management Plan

Remediation Activities

Stapleton International Airport
Denver, Colorado
1.0 INTRODUCTION

This Materials Management Plan (MMP) has been prepared to define how subsurface conditions will be monitored and assessed during demolition activities currently underway at Stapleton International Airport (SIA). The following sections of the MMP are intended to address building demolition activities only; however, the notification and response action procedures described herein will also be followed during associated activities as appropriate. A separate MMP will be developed and implemented to address the remediation program to be conducted at SIA.

2.0 ENTITIES INVOLVED IN THE DEMOLITION ACTIVITIES AT SIA

CCoD Department of Aviation: The point of contact for the CCoD Department of Aviation is Mr. Greg Holt (303-342-2976).

Brown and Caldwell: Mr. Joe Seracuse is the point of contact for Brown and Caldwell. Mr. Seracuse can be reached at one of the following numbers: 303-239-5492 (office) or 303-239-5454 (fax).

URS Corporation (URS): Ms. Cindy Fischer is the point of contact for URS. Ms. Fischer can be reached at 303-325-6579.

SJR Environmental Consulting Services, Inc. (SJR): Mr. Samuel Rolf is the point of contact for SJR. Mr. Rolf can be reached at 303-901-9835 (cell).

3.0 MONITORING AND NOTIFICATION PROCEDURES

CCoD, through its environmental consultant, currently Brown and Caldwell, will conduct inspections during subsurface demolition/remediation activities conducted at the site, if required. These inspections will be conducted in areas believed to have the greatest potential of having contamination (e.g. footings, etc.). The inspections will include a physical evaluation of the subsurface conditions and documentation of observations in a logbook. If necessary, these inspections may be supplemented with field instrumentation (i.e. Photoionization detector, organic vapor meter, field infrared analysis, etc.). If potentially impacted soil is observed during these inspections, Brown and Caldwell will notify the CCoD SIA Project Manager immediately.
It is a contract requirement that the demolition/remediation contractor immediately cease all intrusive activities in an area if potentially impacted soil is observed. It is the responsibility of the demolition/remediation contractor to ensure that the site personnel and equipment operators are aware of this requirement. The requirement and notification procedures are reviewed and discussed during safety meetings for the various projects.

If the demolition/remediation contractor encounters any potential impacted subsurface media during demolition/remediation activities, the demolition/remediation contractor will notify the CCoD on-site representative (i.e. City employee or designee, currently URS). The City representative will then notify Mr. Holt and Brown and Caldwell as quickly as possible. The demolition/remediation contractor has been instructed to immediately cease all intrusive activities in the impacted area, pending determination from CCoD prior to continuation of subsurface activities. Dependent upon the potential quantity, the impacted soils will either be excavated by the demolition/remediation contractor and placed on 6-millimeter (minimum thickness) polyethylene film, excavated and place directly atop the ground surface, or left in place. If excavated, the generated stockpile will be managed to prevent contaminated storm water runoff and blowing dust.

If free phase product is encountered in the subsurface, OPS and/or CDPHE will be notified by the CCoD Project Manager or designated personnel.

4.0 INITIAL RESPONSE ACTIONS

Brown and Caldwell will mobilize personnel to the site with monitoring equipment (i.e. photo ionization detector [PID]) and sampling equipment. Brown and Caldwell's duties may include any of the following:

- Document the location of the suspected release.
- Collect environmental samples for chemical analysis to determine if soil contamination above the Stapleton Numeric Criteria is present.
- Arrange for chemical analysis of samples.
- Describe the subsurface conditions (i.e., soil type, odors, etc.).
- Take photographs of the area, if appropriate.
- Document all site activities underway at the time of site visit.
- Ensure that any excavated soil is stockpiled on polyethylene liner and is covered and berm'd.
- Notify OPS and/or CDPHE if appropriate.

5.0 SOIL EXCAVATION AND MANAGEMENT DURING DEMOLITION

If impacted soil is excavated, the soil will be segregated based on field observations (i.e. PID readings, odor, staining, etc.). Dependent upon the potential quantities, the impacted soils will either be excavated and placed directly atop the ground surface, or left in place. The generated stockpile will be managed to prevent contaminated stormwater runoff and blowing dust. Soil that is assumed not impacted based on field observations will be stockpiled separately from potentially impacted soil. The demolition/remediation contractor may not backfill the excavation until notified by CCoD that backfilling may be conducted.
One composite sample will be collected from approximately each 100 cubic yards of stockpiled, impacted soil to determine the options for management of the material. If the analytical results indicate that the contaminant concentrations are below the Stapleton Numeric Criteria, the material may be utilized onsite as backfill. If the results reveal the presence of contamination above the Stapleton Numeric Criteria, the soil will be characterized and profiled for off-site disposal.

The analytical suite for the stockpile samples will be determined based on the location of the suspected release area relative to historic industrial operations, potential sources for the contamination such as former storage tanks, fanner de-icing areas, and underground utility lines, and field observations (e.g. staining odor, PID readings, etc.). Since the majority of contamination at SIA is the result of fueling operations, samples will most likely be collected for benzene, toluene, ethyl-benzene, and zylene (BTEX) analysis, as well as analysis for total extractable and/or total volatile hydrocarbons. The analytical suite may be expanded to include volatile organic compounds (EPA method 8260), glycols, poly-aromatic hydrocarbons (PAHs), and/or metals.

Additional excavation and material management activities may be implemented in the event that demolition and remediation program responsibilities overlap or where multiple program objectives may be achieved. These additional activities shall be addressed as part of the remediation program MMP.

### 6.0 ASSESSMENT OF REMAINING IMPACTED SOIL

The Demolition Contractor will not conduct remediation activities such as excavation of potentially impacted soils unless specifically requested by the Project Manager for the CCoD Department of Aviation. In general, excavation of potentially impacted soil will only be conducted by the demolition/remediation contractor if removal of the material is required to proceed with the planned demolition activities. Otherwise, the site will be turned over to the CCoD Department of Aviation for assessment and remediation, if required.

Based on the results of the initial assessment activities, a program will be designed and implemented to determine the nature and extent of contamination associated with the release. Conventional methods such as geo-probing, trenching, and/or drilling may be employed to determine the vertical and horizontal extent of contamination. Screening tools such as soil gas may also be used to guide the investigation. The methodology will be dependent on the specific characteristics of the impacted area.

In the event that areas of potentially impacted soils are identified within the boundary of the remediation program, additional assessment and disposal activities may be required. These additional activities shall be addressed as part of the remediation program.

It will be the responsibility of CCoD Department of Aviation to engage a contractor to characterize the site, design and implement a remediation strategy if necessary, and to obtain a no further action determination from the appropriate regulatory agency based on the suspected source of the contamination.
APPENDIX – B Stapleton

Earthwork Specifications

Remediation Activities

Stapleton International Airport
Denver, Colorado
MATERIALS

A. Suitability. All fill materials shall be free of vegetation, brush, sod, and other deleterious substances and shall not contain rocks or lumps larger than 6 inches in greatest dimension. Organic content of all fill materials shall be less than 3%.

B. Select Granular Fill. Select granular fill shall consist of suitable Stapleton area granular soil or similar material containing 100% minus 6-inch material, no more than 10% plus 2-inch material, containing less than 50% passing the No. 200 sieve, and having a maximum plasticity index of 10.

C. Overlot Fill. Overlot fill shall consist of suitable Stapleton area soil or similar material containing 100% minus 6-inch material, no more than 10% plus 2-inch material, containing less than 80% passing the No. 200 sieve, and having a maximum liquid limit of 40 and a maximum plasticity index of 20.

PLACEMENT AND COMPACTION

A. Preparation of Backfill Areas. In areas of proposed embankment, remove all pre-existing fill material, disturbed material, and any unsuitable material down to suitable undisturbed natural soil as determined by a representative of the third party geotechnical engineer. Also flatten any existing excavation slopes to no steeper than 2:1 (horizontal:vertical). Prepare the base of the excavation by scarifying to a minimum depth of 8 inches, moisture conditioning to within 2 percentage points of optimum, and compacting to provide a stable, uniform base for fill placement. Rework any excessively moist or unstable areas as necessary to allow for proper compaction of embankment fill. Where fill is to be placed on slopes steeper than 4:1, excavate 2-foot to 4-foot high horizontal benches to allow fill placement in horizontal lifts. A representative of the third party geotechnical engineer shall be given the opportunity to observe all prepared backfill areas prior to fill placement.

B. Material Zones and Compaction Requirements. Fill placed more than 8 feet below final grade shall consist of Select Granular Fill compacted to at least 100% of the ASTM D 698 (Standard Proctor) maximum dry density. Fill placed within 8 feet of final grade shall consist of Overlot Fill compacted to at least 95% of the ASTM D 698 maximum dry density. All fill placed to within 3 feet of final grade shall be placed at moisture contents between 1 percentage below and 3 percentage points above the ASTM D 698 optimum.
moisture content. The moisture content shall be reduced to between plus/minus 2 percentage points of optimum in the upper 3 feet.

COMPACTATION CONTROL AND QUALITY ACCEPTANCE

A. Material Conformance. Suitability and material conformance of all fill materials will be checked by the third party geotechnical engineer prior to fill placement. The Contractor shall submit samples of all proposed fill materials to the third party geotechnical engineer for approval at least 48 hours prior to placement. Once material sources are initially approved, the third party geotechnical engineer's on-site representative will obtain a sample for conformance testing for at least every 25,000 cubic yards of fill placed, or when a change in material type occurs.

B. Compaction Testing. In compacted fills, the representative of the third party geotechnical engineer will perform in-place nuclear moisture-density tests at a frequency of at least one test for each 2,000 cubic yards of fill placed, with at least one test performed at elevation increments of 1 to 1.5 feet for each day's work in each general work area. No layer of fill shall be covered by another layer until the proper moisture and compaction have been achieved and the area approved by the third party geotechnical engineer's representative.
**Compaction Table:**

<table>
<thead>
<tr>
<th>Deep Zone</th>
<th>Middle Zone</th>
<th>Upper Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>{...Fill&gt; 8-ft BFG*}</td>
<td>(8-ft &lt; Fill&lt; 3-ft BFG*)</td>
<td>(Fill &lt;3-ft BPG*)</td>
</tr>
</tbody>
</table>

**Preparation**

Scarify bottom of excavation to 8” minimum depth, moisture condition to optimum moisture content +/- 2% and re-compact to provide uniform stable base for fill placement. Verify by 3’d party geotechnical engineer.

**Soil Type**

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Deep Zone</th>
<th>Middle Zone</th>
<th>Upper Zone</th>
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<tbody>
<tr>
<td>Select Granular</td>
<td>(100% minus 6-inch, 10% plus 2-inch, &lt;50% passing #200, Plasticity Index 10)</td>
<td>Overlot Fill (100% minus 6-inch, 10% plus 2-inch, &lt;80% passing #200, Liquid Limit 0)</td>
<td>Overlot Fill (100% minus 6-inch, 10% plus 2-inch, &lt;80% passing #200, Plasticity Index 20)</td>
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</table>

**Compaction Standard**

<table>
<thead>
<tr>
<th>Lifts</th>
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<th>Middle Zone</th>
<th>Upper Zone</th>
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<tbody>
<tr>
<td>8” Lifts</td>
<td>100% Std Proctor in</td>
<td>95% Std Proctor in</td>
<td>95% Std Proctor in</td>
</tr>
<tr>
<td></td>
<td>8” Lifts</td>
<td>8” Lifts</td>
<td>8” Lifts</td>
</tr>
</tbody>
</table>

**Moisture Content**

<table>
<thead>
<tr>
<th>Deep Zone</th>
<th>Middle Zone</th>
<th>Upper Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1% &lt;MC &lt;3%</td>
<td>-1% &lt; MC&lt;3%</td>
<td>-2%&lt;MC&lt;2%</td>
</tr>
</tbody>
</table>

**Notes:**

- BFG denotes below finished grade
- 3'party testing required for moisture and compaction at a rate of 1 test per 2000 cubic yards with at least one test performed at elevation increments of 1-1.5ft. for each day's work in each general work area.
APPENDIX – C

Contamination Discovery Report

Remediation Activities

Stapleton International Airport
Denver, Colorado
### Former Stapleton International Airport

#### Contamination Discovery Report

<table>
<thead>
<tr>
<th>DATE DISCOVERY:</th>
<th>TIME:</th>
<th>REPORT NO.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERSON REPORTING:</td>
<td></td>
<td>COMPANY:</td>
</tr>
<tr>
<td>PERSON REPORTED TO:</td>
<td></td>
<td>COMPANY:</td>
</tr>
<tr>
<td>DATE REPORTED:</td>
<td></td>
<td></td>
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#### DISCOVERY

<table>
<thead>
<tr>
<th>Description:</th>
<th>Activity:</th>
<th>Description of how contamination was discovered:</th>
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<tbody>
<tr>
<td>Staining</td>
<td>Pavement Removal</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Building Demolition</td>
<td></td>
</tr>
<tr>
<td>Asbestos</td>
<td>Utility Removal</td>
<td></td>
</tr>
<tr>
<td>Drums</td>
<td>Drilling</td>
<td></td>
</tr>
<tr>
<td>Containers</td>
<td>Soil Excavation</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Building Inspection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundation Removal</td>
<td></td>
</tr>
</tbody>
</table>

| Location of Discovery: | | |

| Approximate size of Discovery: | | |

#### INVESTIGATION

| Description: | | |
|--------------|| |

<table>
<thead>
<tr>
<th>Area:</th>
<th>Depth:</th>
<th>No. of Containers</th>
</tr>
</thead>
</table>

| Sampling Required? | Yes | No |

<table>
<thead>
<tr>
<th>MEDIA:</th>
<th>Soil</th>
<th>Water</th>
<th>Asbestos</th>
<th>Sludge</th>
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<table>
<thead>
<tr>
<th>Number of samples collected:</th>
<th>Water</th>
<th>Soil</th>
<th>Other</th>
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<table>
<thead>
<tr>
<th>Probable contaminant:</th>
<th>Jet Fuel</th>
<th>Diesel</th>
<th>Gasoline</th>
<th>Solvent</th>
<th>Asbestos</th>
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<tr>
<th>Possible sources:</th>
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#### RESULTS

<table>
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<tr>
<th>Date Sampled:</th>
<th>Date Results Reported:</th>
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| Recommended Action: | |

#### ACTION

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<tr>
<th>Date Started:</th>
<th>Date Completed:</th>
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<table>
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<tr>
<th>Entity</th>
<th>In-Charge</th>
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| Contact Person: | |

<table>
<thead>
<tr>
<th>Agency Contacted:</th>
<th>Person Contacted:</th>
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</table>

<table>
<thead>
<tr>
<th>Date Contacted:</th>
<th>Time Contacted:</th>
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</table>

<table>
<thead>
<tr>
<th>Date CAP Submitted:</th>
<th>Date CAP Approved:</th>
</tr>
</thead>
</table>

#### COST OF ACTION:


(insert date)
<table>
<thead>
<tr>
<th>Address</th>
<th>House Sq Ft</th>
<th>Backfill Soil (Cubic Yds)</th>
<th>CDPHE Demo Permit No.</th>
<th>Adams Cnty Permit</th>
<th>Demo Permit Fee</th>
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<tbody>
<tr>
<td>13222 Addish</td>
<td>3,006</td>
<td>71</td>
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<td>13302 Addish</td>
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<td>162</td>
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<td>13384 Addish</td>
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<td>13421 Addish</td>
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<td>13481 Addish</td>
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<td>13522 Addish</td>
<td>1,710</td>
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<tr>
<td>13561 Addish</td>
<td>1,560</td>
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<td>13562 Addish</td>
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<tr>
<td>13263 Buchanan</td>
<td>1,820</td>
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<td>13264 Buchanan</td>
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<tr>
<td>13480 Buchanan</td>
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<td>13227 Duquesne</td>
<td>950</td>
<td>141</td>
<td></td>
<td></td>
<td>$55.00</td>
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<tr>
<td>13280 Gun Club</td>
<td>2,568</td>
<td>238</td>
<td></td>
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<td>$65.00</td>
</tr>
<tr>
<td>13420 Gun Club</td>
<td>1,792</td>
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<td>13460 Gun Club</td>
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<td>13570 Gun Club</td>
<td>1,728</td>
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<td>23441 E 132nd Ave</td>
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<td>Incl. Det. Garage</td>
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<td>23641 E 132nd Ave</td>
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<td>23995 E 132nd Ave</td>
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<td>Totals</td>
<td>39,207</td>
<td>4502</td>
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</tbody>
</table>
DATE 11/02/12

LOT ADDRESS: 13222 Addish Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Tri-Level with attached Garage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>3,006</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Garden Level Basement 20x24</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Wood 10x10, NE Corner 10x10 Slab</td>
</tr>
<tr>
<td>House Materials</td>
<td>Aluminum Siding, Garage wood frame w/aluminum siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Front Yard</td>
</tr>
</tbody>
</table>
DATE 11/01/12

LOT ADDRESS:  13302 Addish Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Tri-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,692</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Garden Level Basement</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Slab 30x5, 100 Foot Sidewalk</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick Veneer with Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank in Backyard</td>
</tr>
</tbody>
</table>
DATE 11/01/12

LOT ADDRESS: 13384 Addish Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Tri-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,870</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>20x25</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Slab 23x6, Back Slab 16x15, Concrete Driveway 30x21</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick with Wood Panel and 45x8 Wood Overhang</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank in Backyard</td>
</tr>
</tbody>
</table>
DATE: 11/01/12

LOT ADDRESS:  13421 Addish Street

NOTE: Friable ACM Contaminated

---

**House Description**

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level with Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,079</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>27x55</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Slab 9x5, Back Wood Deck 10x15, Concrete Driveway 120x2</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick with Wood Paneling</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank in Backyard</td>
</tr>
</tbody>
</table>
DATE 11/06/12

LOT ADDRESS: 13481 Addish Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Ranch with Basement</th>
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</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,950</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Full Basement</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Slab 12x14</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick Veneer</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank on South Side of House</td>
</tr>
</tbody>
</table>
DATE: 11/01/12

LOT ADDRESS: 13522 Addish Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Ranch with Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of</td>
<td>1,710</td>
</tr>
<tr>
<td>House</td>
<td>Full Basement 48x26</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Front Wood Porch, Back Wood Deck, 12x12 Slab</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Brick Veneer and Aluminum Siding</td>
</tr>
<tr>
<td>House Materials</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Septic Tank in Field North of House</td>
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<tr>
<td>Septic Tank</td>
<td></td>
</tr>
</tbody>
</table>
DATE: 11/06/12

LOT ADDRESS: 13561 Addish Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level with Garden Level Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,560</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Garden Level Basement</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Back Wood Deck, 8x12, Slab on side of house 14x15</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick Veneer with Wood</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank in Backyard</td>
</tr>
</tbody>
</table>
DATE 11/01/12

LOT ADDRESS: 13562 Addish Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level with Garden Level Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,592</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Garden Level Basement 48x27</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Slab 6x8, Back Raised Wood Deck 12x10</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick Veneer with Wood Paneling</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank South of Lot</td>
</tr>
</tbody>
</table>
DATE 10/31/12

LOT ADDRESS: 13204 Buchanan Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Ranch with Basement</th>
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<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,704</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Basement</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>70x4 Sidewalk, 8x8 Front Porch Slab, 110x3 Back Sidewalk, Patio Slab 31x16x3 in Back</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick with Brick Chimney</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank in Center of North Lot</td>
</tr>
</tbody>
</table>
DATE_ 10/31/12

LOT ADDRESS:  13263 Buchanan Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Tri-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of</td>
<td>1,820</td>
</tr>
<tr>
<td>House</td>
<td></td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Garden with Fireplace 20x24, sub-basement 22x25</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Porch Slab, 40x6</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick with Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank in Back North Lot</td>
</tr>
</tbody>
</table>
DATE 10/31/12

LOT ADDRESS: 13264 Buchanan Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level</th>
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</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,752</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Garden Level 42x28</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Porch Slab, 5x8, Back 5x5 Slab and Wood Deck</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank in Backyard</td>
</tr>
</tbody>
</table>
DATE 10/31/12

LOT ADDRESS:  13480 Buchanan Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level</th>
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</thead>
<tbody>
<tr>
<td>Square Footage of</td>
<td>1,560</td>
</tr>
<tr>
<td>House</td>
<td></td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Garden Level 38x26</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Porch Slab, 4x24,  Back Wood Deck 12x12</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank in Backyard</td>
</tr>
</tbody>
</table>
DATE 10/30/12

LOT ADDRESS:  13227 Duquesne Street

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level with Garden Level Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of</td>
<td>950</td>
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<tr>
<td>House</td>
<td></td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Garden Level 25x38</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Raised Wood Porch 10x15</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick Veneer with Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank in Front</td>
</tr>
</tbody>
</table>
DATE 11/06/12

LOT ADDRESS: 13280 Gun Club Road (2 Lots East/West)

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Two Story</th>
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</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,568</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>½ Floor, ½ Footings</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Porch 20x18 Slab, Back &amp; Side 220x7 Slab</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding with Large Brick Chimney</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic Tank at NE Corner of Garage</td>
</tr>
<tr>
<td>House Description</td>
<td>Tri-Level with Garden Level Basement</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>Type of House</td>
<td>Square Footage of House</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Porches/Patios</td>
</tr>
<tr>
<td>Perches/Patios</td>
<td>House Materials</td>
</tr>
</tbody>
</table>

**DATE:** 11/06/12

**LOT ADDRESS:** 13420 Gun Club Road

**NOTE:** Friable ACM Contaminated
DATE 11/06/12

LOT ADDRESS:  13460 Gun Club Road

NOTE: Friable ACM Contaminated

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Ranch, no basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,490</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Crawl Space Only</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Slab 10x12, Slab on North Side 39x9</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick Veneer</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Need to Locate</td>
</tr>
</tbody>
</table>
DATE: 11/06/12

LOT ADDRESS: 13570 Gun Club Road

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level</th>
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</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,728</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>23x40</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front 20x5 Slab, Back Covered Patio 10x12</td>
</tr>
<tr>
<td>House Materials</td>
<td>Fake Stone with Wood Veneer</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Backyard</td>
</tr>
</tbody>
</table>
DATE 11/06/12

LOT ADDRESS: 23441 E. 132\textsuperscript{nd} Avenue

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Garden Ranch with Full Basement and DETACHED GARAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,966</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>66x26</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Back Slab 33x7</td>
</tr>
<tr>
<td>House Materials</td>
<td>Aluminum Siding with Brick and Brick Chimney</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Backyard</td>
</tr>
</tbody>
</table>
DATE 10/31/12

LOT ADDRESS: 23641 E. 132\textsuperscript{nd} Avenue

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Tri-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,542</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>45x24</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Slab 24x5</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick Veneer with Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Backyard</td>
</tr>
</tbody>
</table>
DATE 10/30/12

LOT ADDRESS:  23995 E. 132nd Avenue

NOTE: Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Tri-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of</td>
<td>1,876</td>
</tr>
<tr>
<td>House</td>
<td></td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>44x28 Garden Level</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Small concrete walkway front and back of house.</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick Veneer with Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Backyard</td>
</tr>
</tbody>
</table>
# Stone House Farms - Vinyl Sheeting ACM Contaminated Houses Summary

<table>
<thead>
<tr>
<th>Address</th>
<th>House Footprint (sq. ft.)</th>
<th>Backfill Soil (Cubic Yds)</th>
<th>CDPHE Demo Permit No.</th>
<th>Adams Cnty Permit</th>
<th>Demo Permit Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>13321 Addish</td>
<td>1,800</td>
<td>370</td>
<td></td>
<td></td>
<td>$60.00</td>
</tr>
<tr>
<td>13521 Addish</td>
<td>1,755</td>
<td>176</td>
<td></td>
<td></td>
<td>$60.00</td>
</tr>
<tr>
<td>13341 Buchanan</td>
<td>2,740</td>
<td>148</td>
<td></td>
<td></td>
<td>$65.00</td>
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<tr>
<td>13381 Buchanan  *</td>
<td>1,700</td>
<td>355</td>
<td></td>
<td></td>
<td>$60.00</td>
</tr>
<tr>
<td>13440 Buchanan</td>
<td>1,772</td>
<td>354</td>
<td></td>
<td></td>
<td>$60.00</td>
</tr>
<tr>
<td>13441 Buchanan</td>
<td>2,449</td>
<td>273</td>
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<td>$65.00</td>
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<tr>
<td>13481 Buchanan</td>
<td>1,191</td>
<td>111</td>
<td></td>
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<tr>
<td>13540 Buchanan</td>
<td>2,232</td>
<td>498</td>
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<td></td>
<td>$65.00</td>
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<td>13561 Buchanan</td>
<td>1,679</td>
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<td>$60.00</td>
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<tr>
<td>13580 Buchanan</td>
<td>2,000</td>
<td>373</td>
<td></td>
<td></td>
<td>$65.00</td>
</tr>
<tr>
<td>13330 Gun Club</td>
<td>1,790</td>
<td>265</td>
<td></td>
<td></td>
<td>$60.00</td>
</tr>
<tr>
<td>13540 Gun Club</td>
<td>2,672</td>
<td>293</td>
<td></td>
<td></td>
<td>$65.00</td>
</tr>
<tr>
<td>23540 E 134th Ave **</td>
<td>2,262</td>
<td>285</td>
<td></td>
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<td>$65.00</td>
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</tbody>
</table>

Totals: 24,359 3678

*13381 Buchanan St (State) 13351 Buchanan St (Adams Cnty)
**23540 E 134th Ave (State) 23450 E 134th Ave (Adams Cnty)
DATE 11/06/12

LOT ADDRESS: 13321 Addish Street

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level with Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,800</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>50x25</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Raised Wood 10x10, Back Slab 18x6</td>
</tr>
<tr>
<td>House Materials</td>
<td>Aluminum with Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Need to Locate</td>
</tr>
</tbody>
</table>
DATE 11/06/12

LOT ADDRESS: 13521 Addish Street

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Four Levels with Basement</th>
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</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,755</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>2 Levels 44x27</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>FrontSlab 5x6, Back Slab 20x12, Sidewalk 2x16</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick Veneer with Wood Paneling</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Backyard</td>
</tr>
</tbody>
</table>
DATE: 11/06/12

LOT ADDRESS: 13341 Buchanan Street

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level with Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,740</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Garden Level 25x40</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Back Deck Raised Wood 10x12</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Field to the South of House</td>
</tr>
</tbody>
</table>
DATE 10/31/12

LOT ADDRESS: 13381 Buchanan Street (State of CO) 13351 Buchanan Street (Adams County)

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Ranch with Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,700</td>
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<tr>
<td>Basement/Dimensions</td>
<td>48x25</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Back Wood Covered Slab 16x12</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Field to the South of House</td>
</tr>
</tbody>
</table>
DATE 10/31/12

LOT ADDRESS: 13440 Buchanan Street

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Ranch with Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,772</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>46x26</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Slab 6x30, Back Slab 20x10</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding with some Brick Veneer</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Backyard</td>
</tr>
</tbody>
</table>
DATE 10/31/12

LOT ADDRESS: 13441 Buchanan Street

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Ranch with Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,449</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>46x40</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Back Slab 20x11, Sidewalks 30x2</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding with Brick Veneer</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic on North Side of House</td>
</tr>
</tbody>
</table>
DATED 10/31/12

LOT ADDRESS: 13481 Buchanan Street

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Tri-Level with Garden Level Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,191</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>30x25</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Back Wood Deck 16x8, Slab 18x14, Front Raised Steps</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding with Brick Veneer (Raised Footing 3 ft)</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Field North Side of House</td>
</tr>
</tbody>
</table>
DATE 10/31/12

LOT ADDRESS:  13540 Buchanan Street

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Ranch with Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,232</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>60x28</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Back Slab 33x12</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding with Brick Veneer</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Needs to be located</td>
</tr>
</tbody>
</table>
Denver International Airport  
Stone House Farms Buildings  
Pre-Demolition Inspection Report

DATE 10/31/12

LOT ADDRESS: 13561 Buchanan Street

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Tri-Level with Garden Level Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,679</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>46x26</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Concrete Stairs 6x25, Back Raised Wood Deck 12x10</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding with Brick Veneer</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Needs to be located</td>
</tr>
</tbody>
</table>
DATE: 10/31/12

LOT ADDRESS: 13580 Buchanan Street

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level with Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,000</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>42x30</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Sidewalk 24x5, Back Slab 10x12</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding with Brick Veneer</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Backyard</td>
</tr>
</tbody>
</table>
DATE 10/30/12

LOT ADDRESS: 13330 Gun Club Road

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Ranch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>1,790</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Crawl Space Only</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>Front Slab 18x18, Side Slab 30x15</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Backyard</td>
</tr>
</tbody>
</table>
DATE  11/06/12

LOT ADDRESS:  13540 Gun Club Road

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Bi-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,672</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>Garden Level 22x33</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>10x8 Raised Wood Deck</td>
</tr>
<tr>
<td>House Materials</td>
<td>Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic in Backyard</td>
</tr>
</tbody>
</table>
DATE: 11/06/12

LOT ADDRESS: 23530 E. 134th Avenue (State of CO) 23450 E. 134th Avenue (Adams County)

NOTE: Vinyl Sheeting Friable ACM Contaminated

House Description

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Tri-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of House</td>
<td>2,262</td>
</tr>
<tr>
<td>Basement/Dimensions</td>
<td>50x28 &amp; 12x22</td>
</tr>
<tr>
<td>Porches/Patios</td>
<td>17x4 Front Walkway</td>
</tr>
<tr>
<td>House Materials</td>
<td>Brick with Wood Siding</td>
</tr>
<tr>
<td>Condition of House</td>
<td>Structurally Unsound / Unsafe</td>
</tr>
<tr>
<td>On-Ground Materials</td>
<td>Shingles, Miscellaneous Debris</td>
</tr>
<tr>
<td>Septic Tank</td>
<td>Septic on West Side of House</td>
</tr>
</tbody>
</table>
LEGEND:

- **FRIABLE STRUCTURE**
- **FRIABLE WITH SV STRUCTURES**
- **COMPLETE**
- **WELL LOCATIONS**

NOTE: ALL OUTBUILDINGS REMOVED EXCEPT DETACHED GARAGE AT: 23441 E. 132ND AVE.