ATTACHMENT 4
HEALTH AND SAFETY REQUIREMENTS

1.0 HEALTH AND SAFETY

1.1 GENERAL REQUIREMENTS

This section presents the required elements that must be included in the Site specific Health and Safety Plan (HASP) of the construction CONTRACTOR who shall conduct the excavation, relocation, and capping of the asbestos and impacted soils for this project. These elements will include:

- All NESHAP requirements for construction work as presented in 40 CFR Part 61, Subpart M;
- All OSHA requirements for construction workers as presented in 29 CFR 1926.1101;
- All OSHA requirements for all workers as presented in29 CFR 1910.134;
- Proper personal protective equipment (PPE);
- Proper employee monitoring; and
- Proper decontamination after completion of work.

All work shall be conducted in accordance with all applicable local, state, OSHA, DOT, RCRA, NESHAP, and CERCLA rules and regulations for industrial construction and waste handling (each where applicable). A written, Site specific HASP shall be developed in compliance with the references included in this Section. Prior to commencing any on-Site work, the HASP shall be prepared and approved. This HASP shall be implemented, maintained, and enforced until final demobilization from the Site has occurred. The HASP, as a minimum, shall address the regulations contained in this section.

The health and safety guidelines contained herein are intended to provide for a safe and risk-free work environment for on-Site personnel and to minimize the impact of activities involving contract with any hazardous materials on the general public and surrounding environment.

Personnel shall utilize Level C personal protective equipment in the exclusion zone (as defined in Section 1.6) until it has been determined by the air monitoring program that a downgrade in personal protection is feasible. Level C will include the following:

- Air-purifying respirator equipped with P-100 filters;
- Disposable protective coveralls (Tyvek);
- Disposable inner nitrile gloves and outer leather work gloves;
- High-visibility vests;
- Disposal latex overboots;
- Safety glasses;
- Steel toe boots; and,
- Hard hats.

As activities progress, protective equipment requirements may be upgraded or downgraded base on Site conditions/environmental concerns. At a minimum, Site personnel shall wear hard hat, safety glasses, high visibility vest, and steel toe boots.

Suitable emergency and first aid equipment shall be available in an appropriate location at the Site. Emergency and first aid equipment will include:

- First Aid kit sized to accommodate the number of Site personnel;
- Portable emergency eye wash station;
- A suitable number of fire extinguishers; and
- An emergency hand-held siren/air horn.

At least one certified first aid technician shall be on the Site at all times when work is being performed at the Site. This technician may perform other duties but will be available to render first aid when necessary.

Emergency phone numbers shall be posted near the Site telephones and select personnel shall be furnished with 2-way radios and/or cell phones.

Detailed decontamination procedures for both equipment and personnel, including collection and disposal of wash waters, sediments, and spent PPE shall be discussed with all personnel working or visiting the Site. A figure of a decontamination pad large enough to accommodate the largest piece of equipment which will contact impacted soils shall be provided in the Site

specific HASP. All exterior parts of all vehicles, including vehicle tires and vehicle undersides, shall be cleaned visibly free of surface contamination prior to leaving the Site.

Some tasks may have the potential for increased exposure and will require closer monitoring. A task hazard assessment for each task shall be developed, addressing physical and chemical hazards of concern and including safe work procedures to ensure the safety and health of all personnel. The task hazard assessments shall be included as part of the Site specific HASP.

1.2 PROOF OF TRAINING

Site personnel who will be working within any exclusion zone or contamination reduction zone shall be required to submit proof of 32-hour (or 40-hour for supervisory personnel) asbestos training, in accordance with AHERA. In addition, site personnel shall be required to submit proof of Occupational Safety and Health Administration (OSHA) 40-hour safety training as required under OSHA 29 CFR 1910.120 and 29 CFR 1926.65. Additionally, personnel who will be working in a supervisory capacity shall be required to possess documentation of receiving an additional 8 hours of training for supervisory personnel in accordance with OSHA 29 CFR 1910.120 and 29 CFR 1926.65.

The Pennsylvania Department of Labor and Industry shall be notified prior to work activities, pursuant to the Pennsylvania's Asbestos Occupations Accreditation and Certification Act of 1990 (Act 194 and 161).

Personnel not in possession of current training shall be furnished the required training before being assigned to a task or entering the Site. The majority of this training is covered during the Site specific training and the 40-hour HAZWOPER training and/or asbestos training, as applicable; however, task specific training shall be conducted on an as needed basis. Additional information that is to be included as part of the Site specific training, includes the relationship between asbestosis and smoking and the contents of 29 CFR 1923.1101 – Asbestos.

1.3 MEDICAL SURVEILLANCE

Site personnel shall be required to comply with medial surveillance requirements as outlined in

29 CFR 1910.120 (f), 29 CFR 1910.134, and their corporate medical surveillance and respiratory protection programs.

1.4 HEALTH & SAFETY OFFICER

A competent and authorized representative herein referred to as the Health & Safety Officer (HSO) shall be at the Site during all work activities involving the disturbance of asbestos and impacted soils. The HSO shall possess the following minimum qualifications:

- Have a minimum of 2 years working experience specific to the activities being conducted;
- Have a basic working knowledge of state and federal occupational health and safety regulations; and
- Have formal education and/or training in occupational health and safety.

The HSO shall have STOP WORK authority when it is necessary or advisable to cease on Site operations. The HSO shall conduct daily safety meetings for the on Site personnel. These meeting shalll include refresher training regarding existing or new equipment and protocols, review ongoing safety issues and procedures, and examination of new Site conditions as they are encountered. Additional safety meeting will be held on an as-needed basis.

A corporate Safety Manager shall oversee operations as necessary to ensure that project activities are performed in accordance with the Site specific HASP.

1.5 AUTHORIZATION TO ENTER

All personnel and visitors entering work areas at the Site must have completed appropriate training and medical surveillance (as described in Sections 1.2 and 1.3, respectively) in order to conduct the work activities with which they will be involved. Personnel without such training or medical certification shall remain in the Support Zone. The HSO shall maintain a list of authorized persons; only personnel on the authorized persons list will be allowed within the Site work zones. Visitors must be escorted within the work areas at all times. Visitors expecting to enter exclusion zones must possess current training applicable to the area to be visited and must current medical clearance as well as appropriate training to wear a respirator.

No person shall be allowed into the general work area during Site operations without first being given a Site orientation and hazard briefing. This orientation shall be presented by the HSO, and shall consist of a review of the Site specific HASP. This review must cover the chemical, physical, and biological hazards, PPE, safe work practices, and emergency procedures for the project. In addition to this meeting, Daily Safety Meetings shall be held each day before work begins. All people on the Site, including visitors, must document their attendance to this briefing as well as the Daily Safety Meetings. The information presented in the Daily Safety Meetings may be provided to a visitor during their general Site orientation.

1.6 WORK ZONES DESIGNATION

To minimize the exposure of Site workers and equipment and prevent the transfer of contamination by personnel and equipment to clean areas of off-Site locations, work zones shal established.

The designation of appropriate work zones ensures that (1) Site personnel are properly protected against the hazards, (2) work activities and contamination are confined to specific areas, and (3) personnel can be located, notified, and evacuated in an emergency. The distance between the zones and the size and shape of each zone is based on the conditions specific to the Site. Zone planning should assure that the distance between zone boundaries are large enough for the required operations, provide adequate distance to limit or prevent transfer of contamination, and eliminate the potential of injury due to explosions or fires. Each zone is defined as follows.

Exclusion Zone: This zone is the innermost of the three zones and is the area where personnel and equipment will come into contact with contamination. All personnel within the exclusion zone shall wear the specified level of protective clothing and equipment. The primary activity conducted within the exclusion zone will be the excavation and placement of asbestos-impacted Site soil. Depending on the progress of the work, there may be multiple exclusion zones established at the Site at any one time.

Different exclusion zones may contain higher or lower concentrations of hazardous substances,

require different levels of worker protection, and preset varying degrees of hazard. Establishing such sub-areas within the exclusion zone allows more flexibility in safety procedures, operations, personnel and equipment decontamination, and use of resources.

Contamination Reduction Zone (CRZ): This zone is a transition area separating the contaminated area (exclusion zone) from the clean area (support zone). The CRZ is designed to reduce the probability that the support zone will be affected by contamination of other Site hazards. The concentration within the CRZ decreases as personnel and equipment moves from the edge of the exclusion area to the support zone.

The outer boundary of the CRZ is the Contamination Control Line. Access Control Points regulate the movement of personnel and equipment from the support zone into the CRZ. Personnel entering the CRZ shall wear the specified PPO for activities within this zone. Prior to re-entry into the support zone, workers must decontaminate and exit via the established Access Control Point. The design of the CRZ must facilitate personnel and equipment decontamination, emergency response operations, equipment re-supply, sample preparation and packaging, worker temporary resting within predetermined areas, and drainage and collection of water or other liquids used for decontamination. The CRZ may be set up to handle single or multiple exclusion zones.

Support Zone: Non-contaminated outermost zone of the Site. This zone contains needed support equipment and administrative functions. Important factors to consider in the location of the support zone activities are accessibility of roads, highways, railroad tracks, etc; resources such as power lines, telephone, water, visibility to all zones, and distance of the site; wind direction so that it is not downwind of the exclusion zone; and distances maximum possible from Exclusion Zone.

The support zone facilities and functions include:

a) Command post: Headquarters for the daily supervision and management of Site operations. The post functions are:

- Maintenance of communications;
- Site Security;

- Recordkeeping;
- Reference Center;
- Conferences; and
- Sanitation Facilities.

b) Medical station: The station's functions are:
   - First Aid;
   - Emergency Medical Response;
   - Periodic Medical Surveillance; and
   - Sanitation Facilities.

c) Equipment and supply center: Maintenance, repair, and supply of all Site equipment, vehicles, and consumables. CONTRACTOR shall maintain three spare sets of safety equipment for use by ENGINEER and/or regulatory personnel for use in the event of a reported or suspect incident of concern.

1.7 AIR MONITORING PROGRAM

An air monitoring program shall be developed to monitor potential exposure to asbestos during the performance of redevelopment activities where asbestos impacted soil is disturbed. An air monitoring program shall be developed as part of the Site-specific HASP and coordinated with the ENGINEER. At minimum, the air monitoring program must meet the following requirements and applicable local, state, and federal regulations. The air monitoring program sampling and analysis must be administered at the Site by trained, experience technicians. Offsite analysis shall be performed by an accredited laboratory. In accordance with NESHAP, no visible asbestos emissions shall be permitted during work activities.

1.8 PRE-CONSTRUCTION AIR MONITORING

Background air quality shall be established prior to the start of construction activities by the ENGINEER. Background air quality shall be established by the collection of air samples at the upwind and downwind property lines prior to the start of any construction. The purpose of this sampling is to establish a base line of concentrations of asbestos fibers in the ambient air.

A total of 8 samples (including 2 field blanks) shall be collected at a pumping rate of 10 liters per minute (Lpm) for a minimum of 120 minutes (for a total of 1,200 liters of air) using a high volume air pump and sampling cassette (0.45 micrometer cellulose ester membrane). Air sampling pumps adhering to the National Institute for Occupational Safety and Health (NIOSH) shall be used. Samples shall be submitted to EMSL Analytical Laboratories in Plymouth Meeting, Pennsylvania and shall be analyzed using Transmission Electron Microscopy (TEM) to identify asbestos fibers in the air. Local meteorological conditions, such as wind speed, precipitation, humidity, cloud cover, and surface soil moisture shall be recorded.

1.9 AIR MONITORING-PERIMETER

When site soils are being disturbed through activities such as excavation, transportation, and consolidation, perimeter air monitoring shall be performed by the ENGINEER. A windsock shall be used to establish wind direction during the work day (provided by the CONTRACTOR). The HSO shall document the wind direction in the log book on a daily basis. Air sampling pumped adhering to NIOSH Method 7402 shall be used. A sufficient volume shall be collected at six locations, four located on the north south east and west property boundaries and two roaming locations based on prevailing winds and dust monitor results, when work involving asbestos impacted material is occurring. Two additional samples for Quality Assurance/Quality Control (QA/QC) shall be collected. Samples shall be submitted on the same day to EMSL Analytical Laboratories. Samples shall be analyzed on an expedited turnaround (i.e., results next morning). The samples shall be analyzed using TEM to identify asbestos fibers in the air.

A real time dust monitor shall be placed by the ENGINEER at the downwind side and moved manually across the downwind side of the property line to determine the maximum concentration of dust by the ENGINEER. One of the six samplers shall be moved with the dust monitor to establish a correlation between dust level and average asbestos fiber concentrations if there is a correlation. Any correlation shall be used to site samplers in the location that will monitor maximum asbestos fiber concentrations.

Air monitoring results shall be evaluated throughout the project and appropriate adjustments shall be made to work activities when needed. Additionally, should asbestos emissions be

identified, which would constitute an off-site release, monitoring results will be provided to the Borough of Ambler as well as neighboring communities as appropriate (Upper Dublin, Whitpain, Lower Gwynedd).

1.10 AIR MONITORING - PERSONNEL

During tasks where there is potential for exposure to asbestos contaminated materials, at a minimum, the following air sampling strategy shall be employed by the CONTRACTOR:

- One maximum risk employee out of every four similarly assigned employees from each job designation/assignment shall be sampled daily;
- One work shift sample and one 30-minute excursion sample shall be collected on the maximum risk employee. The limit for any 30-minute excursion is 1.0 fibers per cubic centimeter;
- Sample analysis shall be performed daily by an accredited laboratory; and
- Sampling and analysis shall be performed in accordance with the NIOSH Method 7402.

Employees shall be required to utilize Level C protection until the results of time-weighted average (TWA) air sampling demonstrate that the engineering controls implemented are effective in controlling fiber emissions. Protocols for the modifications of the levels of PPE shall be included in the Site-specific HASP.

The results of all TWA aid sampling shall be reviewed by the HSO and Site Superintendent up receipt and appropriate corrective actions shall be taken if necessary. Results shall be reported to the HSO within 24 hours of receipt.