#### PART 1 GENERAL

#### 1.1 General and Related Work

- .1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.
- .2 Related work specified elsewhere:
  - .1 Section 02 82 00.01 Asbestos Abatement Type 1 Procedures
  - .2 Section 02 82 00.02 Asbestos Abatement Type 2 Procedures
- .3 Site Conditions identifies all known hazardous building materials within the Project Area. The information provided is for general reference only:
  - .1 The specification fulfils the requirements of Section 30 of the Ontario Occupational Health and Safety Act.
  - .2 The specification fulfils the requirements of the Section 10 of Ontario Regulation 278/05.
- .4 The Outline of Work identifies the location, condition and quantities of hazardous building materials to be removed as part of this project:
  - .1 It is the intent that work prescribed this Section will result in the removal of all hazardous materials as outlined and the decontamination of all surfaces or materials which may have been or become contaminated by hazardous materials either during or prior to work of this Contract.

#### 1.2 Site Conditions

- .1 Refer to the report entitled "Revised Hazardous Building Materials Assessment, Port Hope High School, 130 Highland Drive, Ontario", dated February 28, 2024, prepared by Pinchin Ltd., file number 335495.027.
- .2 Refer to Drawings HM-01 through to HM-02 for the locations of identified hazardous materials.
- .3 Asbestos:
  - .1 The following materials have been confirmed to contain asbestos:
    - .1 Drywall with drywall joint compound, containing chrysotile asbestos, is present as a wall finish in the following locations:
      - .1 Programming 233 (Location 246)
      - .2 Secretarial 235 (Location 247)
      - .3 Classroom 245 (Location 261)
      - .4 Classroom 247 (Location 262)

- .2 White paint, containing chrysotile asbestos, is present as a wall finish on concrete block walls in the following locations:
  - .1 Programming 233 (Location 246)
  - .2 Storage Room 246A (Location 260)
  - .3 Classroom 245 (Location 261)
  - .4 Classroom 247 (Location 262)
  - .5 Classroom 244 (Location 257)
  - .6 Classroom 246 (Location 259)
- .3 Beige paint, containing chrysotile asbestos, is present as a wall finish on concrete block walls in the following locations:
  - .1 Secretarial 235 (Location 247)
- .4 Glue-on ceiling tiles, containing amosite asbestos, is present as a ceiling finish in the following locations:
  - .1 Classroom 244 (Location 257)
  - .2 Classroom 246 (Location 259)
  - .3 Classroom 247 (Location 262)
  - .4 Work Room 246A (Location 260)
- .5 9" by 9" vinyl floor tile, containing chrysotile asbestos, is present as a floor finish in the following locations:
  - .1 Classroom 244 (Location 257)
  - .2 Classroom 245 (Location 261)
  - .3 Classroom 247 (Location 262)
- .6 12" by 12" vinyl floor tile, containing chrysotile asbestos, is present as a floor finish in the following locations:
  - .1 Secretarial 235 (Location 247)
- .7 12" by 12" vinyl floor tile and mastic, containing chrysotile asbestos, is present as a floor finish in the following locations:
  - .1 Programming 233 (Location 246)
- .8 Caulking, containing chrysotile asbestos, is present on the door frame in the following location:
  - .1 Programming 233 (Location 246)
  - .2 Secretarial 235 (Location 247)
- .9 Mastic containing chrysotile asbestos is present on the underside of the sink in the following location:
  - 1 Work Room 246A (Location 260)
- .2 The following materials are presumed to contain asbestos and should be sampled prior to disturbance:
  - .1 Mastic behind corkboards and chalkboards
    - .1 Programming 233 (Location 246)
    - .2 Secretarial 235 (Location 247)
    - .3 Classroom 245 (Location 261)
    - .4 Classroom 247 (Location 262)
    - .5 Classroom 244 (Location 257)
    - .6 Classroom 246 (Location 259)
- .3 The following materials have been confirmed to not contain asbestos, based on sampling or material composition:
  - .1 Adhesive mastic behind glue-on ceiling tiles in the following locations:
    - .1 Classroom 244 (Location 257)

- .2 Classroom 246 (Location 259)
- .3 Work Room 246A (Location 260)
- .4 Classroom 247 (Location 262)
- .2 Grey caulking around windows in the following locations:
  - .1 Programming 233 (Location 246)
  - .2 Secretarial 235 (Location 247)
  - .3 Classroom 245 (Location 261)
  - .4 Classroom 247 (Location 262)
- .3 12" by 12" white mottled vinyl floor tile and mastic in the following locations:
  - .1 Classroom 246 (Location 259)
- .4 Lay in ceiling tiles in:
  - .1 Programming 233 (Location 246)
  - .2 Secretarial 235 (Location 247)
  - .3 Classroom 245 (Location 261)
- .5 Floor tiles in:
  - .1 Work Room 246A (Location 260)
- .4 Lead:
  - .1 The following paint finishes have been confirmed to contain elevated concentrations of lead:
    - .1 Beige paint on masonry (0.16%)
    - .2 Beige paint on drywall (0.017%)
    - .3 White paint on drywall (0.030%)
    - .4 Blue paint on metal door frames (0.041%)
  - .2 The following paint finishes have been confirmed to contain insignificant concentrations of lead:
    - .1 White paint on block wall (0.003%)
  - .3 The following building materials are presumed to contain lead:
    - .1 Black paint on metal door frame
    - .2 Grey paint on electrical panel door
- .5 Mercury:
  - .1 The following building materials are presumed, or have been confirmed, to contain mercury:
    - .1 Fluorescent lighting
- .6 Silica:
  - .1 The following building materials are presumed, or have been confirmed, to contain silica:
    - .1 Concrete
    - .2 Masonry and mortar
- .7 Polychlorinated Biphenyls

.1 Grey caulking around door frames is presumed to be PCB containing until sampling proved otherwise.

#### .8 Mould

- .1 Mould growth was not found during this assessment.
- .9 Remaining designated substances including arsenic, acrylonitrile, benzene, coke oven emissions, ethylene oxide, isocyanates, vinyl chloride monomer, are not typically found in building materials in a composition/state that is hazardous and are not presumed to be present within the Work Areas.
- .10 General Building Conditions:
  - .1 Heat and smoke detectors to remain live throughout work.
  - .2 Sprinklers to remain live throughout work.
  - .3 Fire detection and suppression systems in the Work Area are to be disabled by the General Contractor and Contractor is responsible to provide fire watch when workers are not present in the Abatement Work Area.

## 1.3 Outline of Work

- .1 Coordinate the following items with the Owner's Project Manager and the Construction Manager, including but not limited to: electrical isolations, GFI connection, water connections, HVAC and exhaust ventilation system isolation, bin placement, schedule, disconnects, etc.
- .2 Refer to Drawings HM-01 through HM-02 for the extent of the Abatement Work Areas.
- .3 Remove of non-asbestos materials will be done by others.
- .4 Using Type 1 procedures remove and dispose of the asbestos containing vinyl floor tiles and mastic in the following locations:
  - .1 Programming 233 (Location 246) Approximately ~1,300 Square Feet, includes asbestos containing mastic
  - .2 Secretarial 235 (Location 247) Approximately ~1,000 Square Feet
  - .3 Classroom 244 (Location 257) Approximately ~1,000 Square Feet
  - .4 Classroom 245 (Location 261) Approximately ~1,000 Square Feet
  - .5 Classroom 247 (Location 262) Approximately ~1,000 Square Feet
- .5 Using Type 1 procedures remove and dispose grey caulking on door frame in the following locations:
  - .1 Programming 233 (Location 246) ~ 20 Linear feet

- .2 Secretarial 235 (Location 247) ~ 20 Linear Feet
- .6 Using Type 1 procedures remove and dispose of the sink with asbestos containing sink mastic in Work Room 246A (Location 260) One sink.
- .7 Using Type 1 procedures remove and dispose of chalkboards and tackboards, and presumed asbestos containing adhesive in the following locations:
  - .1 Programming 233 (Location 246)
  - .2 Secretarial 235 (Location 247)
  - .3 Classroom 245 (Location 261)
  - .4 Classroom 247 (Location 262)
  - .5 Classroom 244 (Location 257)
  - .6 Classroom 246 (Location 259)
- .8 Using Type 2 procedures remove and dispose of the asbestos containing glue-on ceiling tiles in the following locations:
  - .1 Classroom 247 (Location 262) Approximately ~1,000 Square Feet
  - .2 Classroom 244 (Location 257) Approximately ~1,000 Square Feet
  - .3 Classroom 246 (Location 259) Approximately ~1,000 Square Feet
  - .4 Work Room 246A (Location 260) Approximately ~ 100 Square Feet
- .9 Using Type 2 procedures remove wall mounted items from asbestos containing drywall walls, in the following locations:
  - .1 Programming 233 (Location 246) Approximately ~ 600 Square Feet
  - .2 Secretarial 235 (Location 247) Approximately ~600 Square Feet
  - .3 Classroom 245 (Location 261) Approximately ~400 Square Feet
  - .4 Classroom 247 (Location 262) Approximately ~400 Square Feet
- .10 Using Type 2 procedures install wall mounted items from asbestos containing drywall walls, in the following locations:
  - .1 Programming 233 (Location 246) Approximately ~ 600 Square Feet
  - .2 Secretarial 235 (Location 247) Approximately ~600 Square Feet
  - .3 Classroom 245 (Location 261) Approximately ~400 Square Feet

- .4 Classroom 247 (Location 262) Approximately ~400 Square Feet
- .11 Using Type 2 procedures repair and make good asbestos containing drywall walls, in the following locations:
  - .1 Programming 233 (Location 246) Approximately ~ 600 Square Feet
  - .2 Secretarial 235 (Location 247) Approximately ~600 Square Feet
  - .3 Classroom 245 (Location 261) Approximately ~400 Square Feet
  - .4 Classroom 247 (Location 262) Approximately ~400 Square Feet
- .12 Using Type 2 procedures use power tools attached to a HEPA dust collection device to remove and or install items attached to walls and or drill into walls with ACM paint or drywall joint compound, as directed by the general contractor in the following locations:
  - .1 Programming 233 (Location 246)
  - .1 Programming 246 (Location 246)
  - .2 Secretarial 235 (Location 247)
  - .3 Classroom 244 (Location 257)
  - .4 Classroom 246 (Location 259)
  - .5 Work Room 246A (Location 260)
  - .6 Classroom 245 (Location 261)
  - .7 Classroom 247 (Location 262)
- .13 Refer to Specification Sections identified in the Related Work for specified personnel protective measures for the safe handling, removal, clean-up, enclosure of hazardous materials in each phase or work area.
- .14 Visit the site prior to tender close to confirm the location and extent of any hazardous building materials or materials contaminated by hazardous materials.
- .15 Protect surfaces, building fabrics and items remaining within the Abatement Work Area.
- .16 Without disturbing hazardous materials, perform removals where required, prior to abatement work.
  - .1 Maximize waste diversion by use of resale of building materials, or recycling.
- .17 Isolate the Abatement Work Area from adjoining Occupied and Non-Occupied Areas whether present at an interior or exterior location.

- .18 Maintain emergency and fire exits from Abatement Work Area, or establish alternative exits satisfactory to Provincial Fire Marshall and local authorities having jurisdiction.

  Maintain extra routes from occupied areas. Place emergency exit signs at locations to clearly mark exit route. Seal emergency exit doors so as not to impede use of door during emergency evacuation.
- Remove and dispose of as appropriate waste, building components, materials and items contaminated by hazardous materials that cannot be effectively cleaned.
- .20 Encapsulation will not be permitted where removal of building materials or structures scheduled for demolition will facilitate access to the asbestos materials in question.
- .21 Final clean work area to remove visible signs of asbestos and other hazardous materials, other debris or settled dust.
- Apply lock-down agent to exposed surfaces throughout the work area and to surfaces from which any hazardous materials have been removed.
  - .1 Do not apply lock-down to materials which would be damaged by its application.
- .23 Unless otherwise specified, the handling, removal, clean-up or repair of hazardous materials or surfaces contaminated with hazardous materials is to be performed following wet removal techniques.

#### 1.4 Schedule

- .1 Provide necessary manpower, supervision, equipment and materials to maintain and complete the project on schedule.
- .2 Work Hours:
  - .1 Coordinate all work, scheduling, and phasing with the Owner.
- .3 Provide 48 hours written notice to the Abatement Consultant of any request to work outside normal working hours. Obtain written approval before proceeding.

#### 1.5 Definitions

- .1 Abatement Consultant: Owner's Representative providing inspection and air monitoring.
- .2 Abatement Contractor: Contractor or sub-contractor performing work of this section.
- .3 <u>Abatement Work Area</u>: Area where work takes place which will, or may, disturb hazardous materials.
- .4 <u>Amended Water</u>: Water with wetting agent added for the purpose of reducing surface tension to allow thorough wetting of materials.
- .5 <u>Asbestos:</u> Any of the fibrous silicates defined in Regulation 278/05 including: actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite.

- .6 <u>Asbestos-Containing Material (ACM)</u>: Material identified under Site Conditions including any debris, overspray, fallen material and settled dust.
- .7 <u>Authorized Visitors</u>: Building Owner, Abatement Consultant, or designated representative, and persons representing regulatory agencies.
- .8 <u>Competent Worker:</u> A worker who is qualified because of knowledge, training and experience to perform the work, is familiar with Regulation 278/05 and the Occupational Health and Safety Act, and has knowledge of the potential or actual danger to health and safety in the work.
- .9 <u>Contaminated Waste</u>: Material identified under Site Conditions, including fallen material, settled dust, other debris and materials or equipment deemed to be contaminated by the Abatement Consultant.
- .10 <u>Curtained Doorway</u>: Doorway consisting of two (2) overlapping flaps of rip-proof polyethylene arranged to permit ingress and egress from one room to another while permitting minimal air movement between rooms.
- .11 <u>DOP Test</u>: A testing method used to determine the integrity of the Negative Pressure unit or vacuum using a Dispersed Oil Particulate (DOP) or Poly Alpha Olefin (PAO) HEPA filter leak test. This test is to be conducted on site where units are to be installed. Refer to the Environmental Abatement Council of Canada (EACC) DOP/PAO Testing Guideline 2013 or ANSI/ASME N510-2007.
- .12 <u>Fitting</u>: Individual segments or pieces of a mechanical service line which may include but is not limited to the hangers, tees, elbows, joints, valves, unions, etc.
- .13 <u>Friable Material</u>: Material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.
- .14 <u>HEPA:</u> High Efficiency Particulate Aerosol filter that is at least 99.97 percent efficient in collecting a 0.3 micrometre aerosol.
- .15 <u>Mercury Waste:</u> Equipment, materials or items containing mercury or contaminated with mercury.
- .16 <u>Milestone Inspection</u>: Inspection of the Abatement Work Area at a defined point in the abatement operation.
- .17 <u>Negative Pressure</u>: A reduced pressure within the Abatement Work Area (> 0.02 inches of water column) established by extracting air directly from Abatement Work Area and discharging it to exterior of building.
- .18 <u>Non-Friable Material</u>: Material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .19 <u>Occupied Area</u>: Any area of the building or adjoining space outside the Abatement Work Area.

- .20 Personnel: All Contractor's employees, sub-contractors employees, supervisors.
- .21 <u>PCM:</u> Phase Contrast Microscopy.
- .22 <u>Remove</u>: Remove means remove and dispose of (as applicable type of waste) unless followed by other instruction (e.g. remove and turn over to Owner).

### 1.6 Regulations and Guidelines

- .1 Comply with Federal, Provincial, and local requirements, provided that in any case of conflict among those requirements or with these Specifications, the more stringent requirements shall apply. Work shall be performed under regulations in effect at the time work is performed.
- .2 Where regulations are not present, follow accepted industry standards and applicable Guideline documents.
- .3 Regulations and Guidelines include but are not limited to the following:
  - .1 Ministry of Labour Occupational Health and Safety Act Regulations for Construction Projects including Revised Statutes of Ontario 1990, Chapter 0.1 and Ontario Regulation 278/05.
  - .2 Ministry of the Environment and Climate Change Regulation for the disposal of waste, including R.R.O. 1990, Reg. 347 as amended.
  - .3 Regulation 490/09 Designated Substances.
  - .4 Environmental Abatement Council of Canada (EACC), Lead Guideline for Construction, Renovation, Maintenance or Repair, October 2014.
  - .5 Ministry of Labour, Guideline, Silica on Construction Projects, 2011.

# 1.7 Quality Assurance

- .1 Removal and handling of hazardous materials is to be performed by persons trained in the methods, procedures and industry practices for Abatement.
- .2 Ensure work proceeds to schedule, meeting all requirements of this Specification.
- .3 Complete work so that at no time airborne dust, visible debris, or water runoff contaminate areas outside the Abatement Work Area.
- .4 Any contamination of surrounding area (indicated by visual inspection or air monitoring) shall necessitate the clean-up of affected area, and in the same manner applicable to an Abatement Work Area at no cost to the Owner.
- .5 All work involving electrical, mechanical, carpentry, glazing, etc., shall be performed by licensed persons experienced and qualified for the work required.

# 1.8 Supervision

- .1 Supervisory personnel must hold a recognized certificate proving attendance at an asbestos removal training course (2 day minimum duration) and have performed supervisory functions on at least five (5) other asbestos abatement projects of similar size and complexity.
- .2 At all times during work, Shift Superintendent(s) must be on site. Failure to comply with this requirement will result in a stoppage of all work, at no cost to the Owner.
- .3 Replace supervisory personnel, with approved replacements, within three (3) working days of a written request from the Owner. Owner reserves the right to request replacement of supervisory personnel without explanation.
- .4 Do not replace supervisory personnel without written approval from the Owner.

# 1.9 Instruction and Training

- .1 Instruction and training must be provided by a competent person.
- .2 All workers completing Type 1, and 2 asbestos abatement must be trained in compliance with Section 19 of O.Reg. 278/05.

#### 1.10 Notification

- .1 Before commencing work, notify orally and in writing, an inspector at the office of the Ontario Ministry of Labour nearest the project site, where required.
- .2 Inform all trades on site of the presence and location of hazardous materials identified in the Contract documents.
- .3 Notify the Owner or Owner's Representative, the Joint Occupational Health and Safety Committee and the Provincial Ministry of Labour, if suspected asbestos-containing materials not identified in the contract documents are discovered during the course of the work. Stop work in these areas immediately.
- .4 Notify Sanitary Landfill site as per O.Reg. 347/90 as amended.

#### 1.11 Submittals

- .1 Submit to Pinchin prior to starting work:
  - .1 Provincial Workers' Compensation Board Clearance Certificate.
  - .2 Insurance certificates.
  - .3 Copy of Company Health and Safety Policy and applicable programs.
  - .4 Ministry of Labour Notice of Project form.

- .5 Copy of Certificate of Approval for disposal of hazardous materials waste and location of landfill.
- .6 Pre-removal damage survey of the Abatement Work Area(s), waste transport routes, and bin storage areas.
- .2 Submit to Pinchin the following information regarding personnel prior to starting work:
  - .1 Resumes of the supervisory personnel.
  - .2 WHMIS training certificates for all personnel.
  - .3 Working at heights certificates for all personnel.
  - .4 Certificate proving that each worker on site has been fit tested for the respirator appropriate for the work being performed.
- .3 Submit to Pinchin the following information regarding HEPA filtered devices prior to construction of enclosure or asbestos abatement:
  - .1 Performance data on HEPA filtered vacuums including DOP tests no more than 3 months old.
  - .2 Performance data on negative air units including DOP tests which must be no more than 3 months old if the unit is vented outdoors or which must be performed on site immediately prior to initial usage and when HEPA filters are changed if the unit is vented indoors.
  - .3 DOP tests to be performed by an independent testing company:
    - .1 DOP testing company is required to submit a detailed technical report of testing protocol, including Introduction, Methodology, Results, Conclusions, and Recommendations, including results of the Air-Aerosol Mixing Uniformity test as per ASME N510-1989 (1995).
    - DOP testing company must also provide calibration certificates from an independent calibration firm or from the manufacturer of the testing equipment for both the aerosol photometer and the pressure gauge on the aerosol generator dated within 1 calendar year from the on-site testing date.
    - .3 DOP testing company must also provide the National Sanitation Foundation (NSF) certification name and number of the on-site technician performing the testing.
  - .4 Proof of calibration of DOP testing equipment.
- .4 Submit to Pinchin the following prior to isolating the work area:
  - .1 Safety Data Sheets for chemicals or material used in the course of the Abatement Project.
- .5 Submit to Pinchin the following upon completion of the work:

.1 Manifests, waybills, bills of ladings etc. as applicable for each type of waste.

## 1.12 Insurance

- .1 Maintain a Commercial General Liability Policy with an insurance company acceptable to Kawartha Pine Ridge District School Board. The intent of this policy is to hold Kawartha Pine Ridge District School Board harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract. Commercial General Liability insurance shall be provided on an "occurrence" basis to cover injury or damage (whether detected or not during the policy period) which happens during the policy period.
- .2 Maintain an Automobile or Fleet Policy, and Non-owned Automobile Policy with an insurance company acceptable to Kawartha Pine Ridge District School Board. The intent of these policies is to hold Kawartha Pine Ridge District School Board harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract.
- .3 Maintain a Pollution Liability Policy (or asbestos/lead liability policy or specific coverage under the CGL for asbestos/lead abatement) with an insurance company acceptable to Kawartha Pine Ridge District School Board. The intent of this policy is to hold Kawartha Pine Ridge District School Board harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract. Pollution Liability shall be provided on an "occurrence" basis to cover injury or damage (whether detected or not during the policy period) which happens during the policy period. Without limiting the generality of the foregoing, the policy shall insure the operations of abatement and shall not contain any environmental and/or health hazard exclusions relating to remediation operations.
- .4 Forward all certificates to Kawartha Pine Ridge District School Board before work is commenced, showing Kawartha Pine Ridge District School Board as additional insured as their interest may appear.
- .5 Kawartha Pine Ridge District School Board may request a certified true copy of the policies.
- .6 The limits will not be less than:

.1 Commercial General Liability \$5,000,000.00

.2 Automobile \$2,000,000.00

.3 Pollution Policy \$5,000,000.00

## 1.13 Inspection

.1 From commencement of work until completion of clean-up operations, the Abatement Consultant is empowered by the Owner to inspect for compliance with the requirements of governing authorities, adherence to specified procedures and materials, and to inspect for final cleanliness and completion.

- .2 The Abatement Consultant is empowered by the Owner to order a shutdown of work when leakage of asbestos from the controlled work area has occurred or is likely to occur.
- Any deviation from the requirements of the Specifications or governing authorities that is not approved in writing may result in a stoppage of work, at no cost to the Owner.
- .4 Additional labour or materials expended by the Contractor to rectify unsatisfactory conditions and to provide performance to the level specified shall be at no additional cost to the Owner.
- .5 Inspection and air monitoring performed as a result of Contractor's failure to perform satisfactorily regarding quality, safety, or schedule, shall be back-charged to the Contractor.
- .6 Facilitate inspection and provide access as necessary. Make good work disturbed by inspection and testing at no cost to the Owner.
- .7 Refer to the Sections identified in Related Work for specified milestone inspections which are to take place at defined points throughout the abatement operation specific to each phase or work area.
- .8 Provide 24 hours written notice to the Abatement Consultant of any request for scheduling of milestone inspections or transportation of waste through Occupied Areas.
- .9 The following Milestone Inspections may take place, at the Owner's cost, as outlined in each related specification section.
  - .1 Milestone Inspection Clean Site Preparation
    - .1 Inspection of preparations and set-up prior to contaminated work in the Abatement Work Area.
  - .2 Milestone Inspection Bulk Removal Inspection
    - .1 Inspection during asbestos removal, monitoring removal methods, site deficiencies, performing occupied air monitoring, etc.
  - .3 Milestone Inspection Visual Clearance
    - .1 Inspection of Abatement Work Area after completion of all abatement, but prior to application of lock-down agents or dismantling of enclosure.
  - .4 Milestone Inspection Post-abatement Sampling
    - .1 Air monitoring performed following removal of asbestos and application of slow drying sealer to ensure fibre levels inside the Type 2 work areas are within the acceptable limits. The number of samples to be collected and analysed are based on the requirements of O.Reg. 278/05.
- .10 Refer to the Sections identified in Related Work for specified milestone inspections which are to take place at defined points throughout the abatement operation specific to each phase or work area.

.11 Do not proceed with next phase of work until written approval of each milestone is received from the Abatement Consultant.

#### 1.14 Worker Protection

- .1 Instruct workers before allowing entry to the Abatement Work Area. Instruction shall include training in use of respirators, dress, showering, entry and exiting from an Abatement Work Area, and all other aspects of work procedures and protective measures.
- .2 Workers shall not eat, drink, chew gum or tobacco, vape or smoke in the Abatement Work Area.
- .3 Workers shall be fully protected at all times when possibility of disturbance of hazardous materials exists.
- .4 Provide soap, towels and facilities for washing of hands and face, which shall be used by all personnel when leaving the Abatement Work Area.
- .5 Respiratory Protection
  - .1 Refer to each particular Section of the Specification for specified type of respiratory equipment specific to each phase or work area.
  - .2 Respirators shall be:
    - .1 Certified by the National Institute of Occupational Safety and Health (NIOSH) or other testing agency acceptable to the Ministry of Labour.
    - .2 Fitted so that there is an effective seal between the respirator and the worker's face. Ensure that no person required to enter an Abatement Work Area has facial hair which affects the seal between respirator and face.
    - .3 Assigned to a worker for their exclusive use.
    - .4 Maintained in accordance with manufacturer's specifications.
    - .5 Cleaned, disinfected and inspected by a competent person after use on each shift, or more often if required.
    - .6 Repaired or have damaged or deteriorated parts replaced.
    - .7 Stored in a clean and sanitary location.
    - .8 Provided with new filters as necessary, according to manufacturer's instructions.
    - .9 Worn by personnel who have been fit checked by qualitative or quantitative fit-testing.
    - .10 Instruction on proper use of respirators must be provided by a competent person as defined by the Occupational Health and Safety Act.
  - .3 Provide protective clothing, to all personnel which:
    - .1 Is made of a material that does not readily retain nor permit penetration of asbestos fibres or lead/silica dust.
    - .2 Consists of head covering and full body covering that fits snugly at the ankles, wrists and neck.
    - .3 Once coveralls are worn, treat and dispose of as contaminated waste.
    - .4 Is replaced or repaired if torn or ripped.

.4 Use hard hats, safety footwear, fall arrest, and other protective equipment and apparel required by applicable construction safety regulations.

#### 1.15 Visitor Protection

- .1 Provide clean protective clothing and equipment to Authorized Visitors.
- .2 Instruct Authorized Visitors in the use of protective clothing and Abatement Work Area entry and exit procedures.
- .3 Authorized visitors are required to be fit tested on respirators, prior to entering Abatement Work Area.
  - .1 Respirator worn must be compliant with Section 13 and Table 2 of O.Reg. 278/05

## 1.16 Signage

- .1 <u>Asbestos Abatement Signs:</u> Post signs at access points to the Abatement Work Area, stating at minimum, the following:
  - .1 There is an asbestos dust hazard.
  - .2 Access to the work area is restricted to persons wearing protective clothing and equipment.
- .2 <u>Vehicles, Bins and Asbestos Waste Containers:</u> Post signs on both sides of every vehicle used for the transportation of asbestos waste and on every asbestos waste container. Signs must display thereon in large, easily legible letters that contrast in colour with the background the word "CAUTION" in letters not less than ten centimetres in height and the words:
  - .1 CONTAINS ASBESTOS FIBRES
  - .2 Avoid Creating Dust and Spillage
  - .3 Asbestos May be Harmful To Your Health
  - .4 Wear Approved Protective Equipment.
- .3 Place placards in accordance with Transportation of Dangerous Goods Act.

# 1.17 Waste and Material Handling

- .1 Waste bins must be placed on grade or in receiving.
- .2 All bins for hazardous materials must be covered and locked when waste transfer is not being performed.
- .3 Ensure redundant non-ACM, rubble, debris, etc. removed during contaminated work are treated, packaged, transported, and disposed of as appropriate waste.

- .4 Clean, wash and apply Post Removal Sealant to metal waste prior to removal from Abatement Work Area. Recycle metals.
- .5 Clean, wash and apply Post Removal Sealant to non-porous materials prior to disposal as clean waste. Obtain prior written approval from the Abatement Consultant for each individual type of material.
- .6 Clean and wash equipment prior to removal from Abatement Work Area if removed prior to completion.
- .7 Place all equipment, tools and unused materials that cannot be cleaned in Abatement Waste Containers.
- .8 As work progresses, and at regular intervals, transport the sealed and labelled waste containers from the Abatement Work Area to waste bin.
- .9 Place items in bins according to waste classification. Place asbestos waste, , metals, non-asbestos waste, etc. in separate bins.
- .10 Removal of waste containers and decontaminated tools and materials from the Abatement Work Area shall be performed as follows:
  - .1 Remove any visible contamination from the surface of non-porous or cleanable waste being removed from the Abatement Work Area. If the item can be cleaned, remove it from the site as clean waste.
  - .2 Place waste or item in Waste Container and seal closed.
  - .3 Wet wipe outside of Waste Container.
  - .4 Within Decontamination Facility, Transfer Room or at the perimeter of the Abatement Work Area, place in second Waste Container. Seal closed.
  - .5 Remove waste containers and transport to appropriate bin.
- .11 Transport waste and materials via the predetermined routes and exits. Arrange waste transfer route with Owner. Use a closed, covered cart to transport through Occupied Areas.
- .12 Provide workers transporting waste with means to access full personal protective equipment and all tools required to properly clean up spilled material in the case of a rupture of a Waste Container.
- .13 Pick-up and drop off of garbage bin shall be at pre-approved times, and must not interfere with the Owners operations.
- .14 Transport hazardous waste to landfill or waste transfer station licensed by the provincial Ministry of the Environment.

.15 Cooperate with the provincial Ministry of the Environment inspectors and immediately carry out instructions for remedial work at dump to maintain environment, at no additional cost to the Owner.

## 1.18 Re-establishment of Objects and Systems

- .1 Re-establish objects and items relocated by the Contractor's workforce to facilitate work.
- .2 Re-establish electrical, communication, HVAC and other services previously disconnected or otherwise isolated to accommodate work by this Section.
- .3 Make good at completion of work, all damage not identified in pre-removal survey.

#### PART 2 PRODUCTS AND FACILITIES

# 2.1 Materials and Equipment

- .1 Refer to the Sections identified in Related Work for specified materials, equipment or facilities specific to each phase or work area.
- .2 Materials and equipment must be in good condition and free of debris and fibrous materials. Disposable items must be of new materials only.
- .3 <u>Airless Sprayer:</u> AC powered pressure washer that allows wetting agent to mix with water, uses no air or compressed air, and has a nozzle to regulate power and pressure.
- .4 <u>Amended Water:</u> Water with wetting agent added for purpose of reducing surface tension to allow thorough wetting of materials.
- .5 <u>Asbestos Waste Container:</u> A container acceptable to disposal site, Ministry of the Environment, and Ministry of Labour, comprised of the following:
  - .1 Dust tight.
  - .2 Suitable for the type of waste.
  - .3 Impervious to asbestos.
  - .4 Identified as asbestos waste.
- .6 <u>HEPA Filtered Negative Pressure Machine</u>: Portable air handling system which extracts air directly from the Abatement Work Area and discharges the air to the exterior of the building. Equipped as follows:
  - .1 Prefilter and HEPA filter. Air must pass HEPA filter before discharge.
  - .2 Pressure differential gauge to monitor filter loading.
  - .3 Auto shut off and warning system for HEPA filter failure.

- .4 Separate hold down clamps to retain HEPA filter in place during change of prefilter.
- .7 <u>HEPA Vacuum</u>: Vacuum with necessary fittings, tools and attachments. Discharged air must pass through a HEPA filter.
- .8 <u>Hose:</u> Leak-proof, minimum busting strength of 500 PSI or greater if required, abrasion resistant covering, reinforcing, and machined-brass couplings. Maintained and tested. Hose to be temperature resistant if it is to carry domestic hot water.
- .9 <u>Polyethylene Sheeting</u>: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints.: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints.
- .10 <u>Post Removal Sealant (or Lockdown):</u> Sealant that when applied to surfaces serves the function of trapping residual asbestos fibres or other dust. Product must have flame spread and smoke development ratings both less than 50. Product shall leave no stain when dry. Post Removal Sealant shall be compatible with replacement insulation or fireproofing where required and capable of withstanding service temperature of substrate. Apply to manufacturer's instructions.
- .11 <u>Protective Clothing</u>: Disposable coveralls complete with head covering and full body covering that fits snugly at the ankles, wrists and neck.
- .12 <u>Rip-Proof Polyethylene Sheeting</u>: 8 mil (0.20 mm) fabric made up from 5 mil (0.13 mm) weave and two (2) layers of 1.5 mil (0.05 mm) poly laminate or approved equal. In sheet size to minimize on-site seams and overlaps.
- .13 <u>Sprayer:</u> Garden type portable manual sprayer or water hose with spray attachment if suitable.
- .14 <u>Tape:</u> Duct tape or tape suitable for sealing polyethylene to surfaces under both dry and wet conditions in the presence of Amended Water.
- .15 <u>Wetting Agent</u>: Non-sudsing surfactant added to water to reduce surface tension and increase wetting ability.

#### PART 3 EXECUTION

.1 Refer to the Sections identified in Related Work for specified procedures for work area preparation, maintenance, site dismantlement, application of lock-down agent and all other procedures for the safe handling, removal and clean-up of hazardous materials specific to each phase or work area.

## **END OF SECTION**

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#### PART 1 GENERAL

#### 1.1 General and Related Work

- .1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.
- .2 Requirements specified elsewhere:
  - .1 Section 02 81 00 Hazardous Materials General Provisions
  - .2 Section-02 82-00.02 Asbestos Abatement -- Type 2 Procedures

#### 1.2 Outline of Work

- .1 Refer to Section 02 81 00 Hazardous Materials General Provisions for the Outline of Work.
- .2 Refer to Drawings HM-01 through HM-02 for the extent of the Abatement Work Areas.
- .3 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Type 1 procedures, and Pinchin and Owner specific requirements.

#### 1.3 Personal Protection

- .1 Protect all personnel at all times when possibility of disturbance of ACM exists.
  - .1 Provide fitted non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters when requested by personnel.
  - .2 When requested by personnel, provide protective clothing.
- .2 Provide protective clothing, to all personnel entering the Abatement Work Area.
- .3 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

# 1.4 Inspections

- .1 Refer to Part 1.13 Inspections in Section 02 81 00 General Provisions.
- .2 The following Milestone Inspections are to be scheduled:
  - .1 Milestone Inspection Clean Site Preparation
  - .2 Milestone Inspection Visual Clearance

## PART 2 PRODUCTS AND FACILITIES

.1 Refer to Section 02 81 00.

#### PART 3 EXECUTION

## 3.1 Site Preparation

- .1 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.
- .2 Install signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.
- .3 Provide amended water for wetting ACM, and adequate method of wetting (garden sprayers, airless sprayers, etc.).

.4 Without disturbing asbestos-containing materials, remove and dispose of non-hazardous materials as clean waste prior to asbestos removal work, where possible.

#### 3.2 Maintenance of Abatement Work Area

.1 Maintain Abatement Work Area in tidy condition.

## 3.3 Asbestos Removal - General

- .1 Do not use powered tools or non-handheld tools.
- .2 Do not use compressed air to clean or remove dust or debris.
- Do not break, cut, drill, abrade, grind, sand or vibrate ACM if it cannot be wetted. Type 2 procedures would be required if the material cannot be wetted due to hazard or damage.
- .4 Wet ACM prior to work and keep ACM wet throughout the removal process.
- .5 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet mopping.
- .6 Frequently and at regular intervals, place all waste in asbestos waste containers.
- .7 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

# 3.4 Asbestos Removal - Vinyl Asbestos Tile

- .1 Wedge a heavy-duty scraper in seam of two adjoining tiles and gradually force edge of one tile up and away from floor. Do not break off pieces of tile but continue to force balance of tile up.
- .2 Place tile, without breaking into smaller pieces, into Asbestos Waste Container.
- .3 Force scraper through tightly adhered areas by striking scraper handle with a hammer.
- .4 Heat tile thoroughly with a hot air gun until heat penetrates through tile and softens adhesive in areas where scraper will not remove tile.
- .5 Scrape up adhesive remaining on floor with a hand scraper until only a thin smooth film remains.
- .6 Use a hot air gun where deposits are heavy or difficult to scrape.
- .7 Deposit scrapings into asbestos waste disposal bag.
- .8 HEPA vacuum floor on completion of work in area.

# 3.5 Asbestos Removal - Removal of Other Non-Friable Asbestos Materials – Sink with asbestos containing Mastic

- .1 Wet all material to be disturbed.
- .2 Undo fasteners if necessary to remove material.
- .3 Break material only if unavoidable, and wet material if broken during work.
- .4 Use only non-powered hand-held tools to remove ACM.
- .5 Scrape to remove material adhered to substrate.
- .6 Place removed ACM directly into an asbestos waste container.

## 3.6 Asbestos Removal - Removal of Other Non-Friable Asbestos Materials - Caulking

- .1 Wet all material to be disturbed.
- .2 Use only non-powered hand-held tools to remove ACM.
- .3 Scrape to remove material adhered to substrate.
- .4 Place removed ACM directly into an asbestos waste container.

## 3.7 Asbestos Removal – Chalkboard and Tackboard Mastic

- .1 If sampling of these materials determine that they are asbestos-containing, the following procedures will apply.
- .2 Remove blackboards and tackboard with non-powered hand tools.
- .3 Use scrapper or squeegee to remove mastic Place waste into an asbestos waste container.
- .4 Remove mastic from substrate and blackboards and tackboard.
- .5 Confirm no residual mastic is present.

## 3.8 Abatement Work Area Dismantling

- .1 Wash or HEPA vacuum equipment and tools used in contaminated Abatement Work Area to remove all asbestos contamination, or place in Asbestos Waste Containers prior to being removed from Abatement Work Area.
- .2 Place tools and equipment used in contaminated work site but not cleaned in polyethylene bags prior to removal from Abatement Work Area.
- .3 Clean polyethylene sheeting and drop sheets which with HEPA vacuum or wet cleaning methods at completion of work.
- .4 Wet drop sheets and polyethylene sheeting.
- .5 Carefully roll polyethylene sheeting and drop sheets toward the centre. As polyethylene is rolled away, immediately remove visible debris beneath with a HEPA vacuum.
- .6 Remove remaining polyethylene sheeting and tape.
- .7 Place polyethylene sheeting, drop sheets, tape, disposal clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

## 3.9 Waste and Material Handling

.1 Refer to Section 02 81 00.

# **END OF SECTION**

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#### PART 1 GENERAL

## 1.1 General and Related Work

- .1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.
- .2 Requirements specified elsewhere:
  - .1 Section 02 81 00 Hazardous Materials General Provisions
  - .2 Section 02 81 01 Hazardous Materials Type 1 Precautions

#### 1.2 Outline of Work

- .1 Refer to Section 02 81 00 Hazardous Materials General Provisions for the Outline of Work.
- .2 Refer to Drawings HM-01 through HM-02 for the extent of the Abatement Work Areas.
- .3 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Type 2 procedures, and Pinchin and Owner specific requirements.

#### 1.3 Personal Protection

- .1 Protect all personnel at all times when possibility of disturbance of ACM exists.
- .2 Provide the following minimum respiratory protection to all personnel:
  - .1 Non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters:
    - .1 Removal using wetting techniques and hand tools.
- .3 Provide protective clothing, to all personnel entering the Abatement Work Area.
- .4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

# 1.4 Inspections

- .1 Refer to Part 1.13 Inspections in Section 02 81 00 General Provisions.
- .2 The following Milestone Inspections are to be scheduled:
  - .1 Milestone Inspection Clean Site Preparation
  - .2 Milestone Inspection Visual Clearance
  - .3 Milestone Inspection Post-abatement Sampling

# PART 2 PRODUCTS AND FACILITIES

.1 Refer to Section 02 81 00.

## 2.1 Hoarding Walls

.1 <u>Type A Hoarding Wall:</u> One layer of rip-proof polyethylene sheeting installed floor to ceiling, secured with telescopic poles, clips, or other suitable methods.

#### 2.2 Curtained Doorways

- .1 Construct as follows:
  - .1 Install two flap doors, full width and height of door opening at all doors to Abatement Work Area and both ends of Transfer Room.

- .2 Construct each flap door of two layers of polyethylene sheeting with all edges reinforced with tape. Use wood strapping to securely fasten flap doors to head and alternate jambs.
- .3 Install weights attached to bottom edge of each door flap.
- .4 Provide direction arrows on flaps to indicate opening.

## PART 3 EXECUTION

## 3.1 Site Preparation - General

- .1 Remove stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.
- .2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.
- .3 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.
- .4 Provide amended water for wetting ACM, and adequate method of wetting (garden sprayers, airless sprayers, etc.).

.5

## 3.2 Site Preparation – No Enclosure Required

- .1 Install caution tape around work area where existing walls are not present.
- .2 Cover walls, floors, finishes, millwork, equipment and furnishings remaining in the Abatement Work Area with polyethylene sheeting before disturbing ACM to control the spread of dust.
- .3 Install one layer of 6 mil polyethylene sheeting so as to protect all equipment and finishes in the Abatement Work Area that may be damaged. Items to remain include but are not limited to:
  - .1 Millwork.
  - .2 Doors.
  - .3 Bulkheads.
  - .4 Toilet Partitions.
  - .5 Plumbing fixtures.
  - .6 Electrical Equipment.
  - .7 Mechanical Equipment.
  - .8 Kitchen Equipment.
- .4 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.
- .5 Install temporary lighting in enclosure to a level that will provide for safe and efficient use of work area minimum 550 LUX.
- .6 Place HEPA vacuum in Abatement Work Area.
- .7 Place required tools to complete the abatement with the Abatement Work Area.

#### 3.3 Maintenance of Abatement Work Area

.1 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.

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- .2 Inspect electrical panels and ensure locks and tags are on panels prior to entering the Abatement Work Area.
- .3 Inspect HEPA filtered negative pressure machines including discharge ducting at the beginning and end of each working period. Inspection must be performed by competent person.
- .4 Maintain Abatement Work Area in tidy condition.
- .5 Remove standing water on polyethylene/floor at the end of every shift.
- .6 Turn off water supply to any hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

#### 3.4 Asbestos Removal - General

- .1 Do not use compressed air to clean or remove dust or debris.
- .2 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.
- .3 Frequently and at regular intervals, place all waste in asbestos waste containers.
- .4 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

## 3.5 Asbestos Removal – More than 7.5 square Metres of Ceiling Tiles

- .1 Use the procedures described above under *Site Preparation –No Enclosure Required*.
- .2 Mist surface of ceiling tiles with amended water.
- .3 Remove ceiling tiles intact. Do not break or pulverize.
- .4 Carefully remove laminated tiles by prying tile from substrate. Do not break tiles or allow to fall to floor.
- .5 Remove all glue from substrate.
- .6 Place directly into asbestos waste container.
- .7 Repeat items .3 to .6, until all required ceiling tiles are removed.
- .8 Place ACM directly into waste containers.
- .9 Remove visible dust and debris including at grid.
- .10 Do not damage or remove grid.
- .11 Wet clean or HEPA vacuum the entire Abatement Work Area, including surfaces not covered with polyethylene sheeting (i.e. ceiling grid).
- Any materials or equipment removed to access ACM that are to be reused, must be wet cleaned or vacuumed prior to reinstatement.

# 3.6 Asbestos Removal – Removal and Installation of Items on Asbestos Containing Drywall Joint Compound

- .1 Use the procedures described above under *Site Preparation –No Enclosure Required*.
- .2 Wet all material to be disturbed.
- .3 Turn on HEPA vacuum. Vacuum to remain operation throughout work.

- .4 Use power tools attached to a HEPA dust collection device to remove and or install items attached to walls and or drill into walls with ACM compound.
- .5 Place removed ACM directly into an asbestos waste container.
- .6 If power tool can disconnect from HEPA vacuum, remove tool, and HEPA vacuum tool and bit, blade, etc., and shrouds.
- .7 Wet clean or HEPA vacuum the entire Abatement Work Area, including surfaces not covered with polyethylene sheeting. Any materials or equipment removed to access ACM that are to be reused, must be wet cleaned or vacuumed prior to reinstatement.

# 3.7 Asbestos—Repair - Drywall with Asbestos Drywall Joint Compound (greater than 1 square metre)

- .1 Use the procedures described above under *Site Preparation –No Enclosure Required*.
- .2 Install polyethylene drop sheet under work area.
- .3 Use non-asbestos joint compound to create smooth paintable surface.
- .4 Wet clean or HEPA vacuum the entire Abatement Work Area, including surfaces not covered with polyethylene sheeting. Any materials or equipment removed to access ACM that are to be reused, must be wet cleaned or vacuumed prior to reinstatement.

## 3.8 Abatement Work Area Dismantling

- .1 Wash or HEPA vacuum equipment and tools used in contaminated Abatement Work Area to remove all asbestos contamination, or place in Asbestos Waste Containers prior to being removed from Abatement Work Area.
- .2 Place tools and equipment used in contaminated work site but not cleaned in polyethylene bags prior to removal from Abatement Work Area.
- .3 Clean polyethylene sheeting and drop sheets which with HEPA vacuum or wet cleaning methods at completion of work.
- .4 Wet drop sheets and polyethylene sheeting.
- .5 Carefully roll polyethylene sheeting and drop sheets toward the centre of enclosure. As polyethylene is rolled away, immediately remove visible debris beneath with a HEPA vacuum.
- .6 Remove remaining polyethylene sheeting and tape and dispose of as asbestos waste.
- .7 Place polyethylene sheeting, drop sheets, tape, disposal clothing and other contaminated waste in asbestos waste containers, wet wipe, and place in second asbestos waste container.
- .8 Remove remaining site isolation, seals, tape, etc.
- .9 Remove seals, tape, Signage etc.
- .10 Immediately upon shutting down negative air units, seal air inlet grill and exhaust vent with polyethylene and tape.
- .11 Seal openings in HEPA vacuums.
- .12 Remove and dispose of the pre-filters from HEPA filtered negative pressure machines as asbestos waste.
- .13 Remove HEPA filtered negative pressure machines and discharge ducting or HEPA vacuums.

- .14 Remove temporary lights.
- .15 Place contaminated materials including polyethylene sheeting, drop sheets, seals, tape, disposable coveralls, and other contaminated waste in asbestos waste containers.

# 3.9 Waste and Material Handling

.1 Refer to Section 02 81 00.

## **END OF SECTION**

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