

**REQUEST FOR QUOTATION  
Asbestos Containing Materials - Removal**

LAKEHEAD UNIVERSITY  
955 OLIVER ROAD  
THUNDER BAY, ONTARIO  
CANADA P7B 5E1

**RFQ 15-009**

**Mandatory Site Visit:  
Thursday, August 20<sup>th</sup>, 2015 @ 1:30PM  
Physical Plant Boardroom, Avila Centre**

**Closing Date & Time:  
Thursday, September 17th, 2015  
@ 3:00:00 PM Local time**

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## **SECTION I: INTRODUCTION**

### **1.1 OBJECTIVE**

Lakehead University (LU) invites submission of quotations to remove asbestos containing materials (ACM) from the Thunder Bay campus.

Proponent teams must be well qualified to perform the following scope of work:

- a) Remove and dispose of existing asbestos containing materials, such as vinyl floor tiles, pipe/fitting/elbow insulation, gypsum board walls and ceiling, and fibrous fireproofing, from the subject areas, according to the methods described in Section III of this document.
- b) Replace with like, (non-asbestos), materials, as specified.
- c) Very quantities removed, with a complete list submitted to Owner, at end of project.

### **1.2 BACKGROUND**

Lakehead University asbestos management plan includes annual asbestos audits, in all buildings, built on or before 1995. Annual removals are based on these audits.

### **1.3 SCHEDULE**

**Site Visit: August 20, 2015**

**Close Date & Time: September 17th, 2015, @ 3:00:00PM local time**

**Start Work: October 5, 2015**

**Complete Work: December 18, 2015.**

### **1.4 DEFINITIONS**

“RFP” means this Request for Proposal.

“Proposal” means the document issued by Lakehead University in response to which offers are invited for the performance of services therein.

“Proponent” means a vendor invited to submit a Proposal in response to this RFP.

“Proposal Submission” means the Proponent response to this RFP.

“Contract” means the agreement (if any), the purchase order, the Request for Proposal and the Respondent’s Proposal and any subsequent changes.

“University” means Lakehead University.

“ACM” means Asbestos Containing Material.

“Owner” means Lakehead University.

“WHMIS” means Workplace Hazardous Materials Information System.

“MSDS” means Material Safety Data Sheet.

## **SECTION II: INSTRUCTIONS TO BIDDERS**

- 2.1 Site visit is mandatory.** The site visit will commence in the Agora, of the University Centre. Bids submitted by bidders who were not present, will not be considered. Thus, bids are accepted on the basis that the bidder has reviewed the site so as to compare with the contract documents, and has satisfied itself as to the conditions and means of access, and the nature and quantity of work required. No allowance will be made to the successful bidder by reason of error or neglect on its part in this respect.
- 2.2** Quotations must be received in the Lakehead University Purchasing Department, room BB1002A, **by 3:00:00 PM on Wednesday, September 2nd 2015**, in a sealed envelope; marked: **RFQ LU15-009**

*Address submissions to:*

**GEOFFERY MATTE (gmatte@lakeheadu.ca)**  
**Purchasing Manager**  
**Room BB-1002A, Braun Building**  
**Lakehead University**  
**955 Oliver Road**  
**Thunder Bay, Ontario P7B 5E1**

- 2.3** Quotations received after the above closing time and date will not be considered and will be returned to the bidder.
- 2.4** Two completed copies of the quotation are required, in a closed, opaque envelope.
- 2.5** Lakehead University accepts no responsibility or liability for misdirected, unreadable, incomplete bids or electronic mail questions. It is the sole responsibility of the bidder to ensure their bids have been received by the authorized representative of the University in a timely manner.
- 2.5** Quotation documents must have all Bid Forms completed: Project Experience, Senior Staff; (demonstrating strength, depth and qualifications, clearly stating team structure) and Subcontractors, (listing all). No amendment or change to quotations will be accepted after the closing date and time.
- 2.6** Quotation shall be originally signed by an authorized signatory of the bidder. If the bidder is an incorporated company, the corporate seal of the bidder shall be affixed or a certified true copy of a resolution of the corporation naming the person in question as authorized to sign agreements on behalf of the corporation shall be attached to Quotation. Bidders who are sole proprietorships or partners shall sign their bid in such a way as to irrevocably bind the bidder in an authorized manner.
- 2.7** All questions regarding this Request for Quotation must be submitted in writing (fax, mail or email only) by **3:00:00pm, Friday August 28th, 2015**.

*Address questions to:*

**GEOFFERY MATTE (gmatte@lakeheadu.ca)**  
**Purchasing Manager**  
**Room BB-1002A, Braun Building**  
**Lakehead University**  
**955 Oliver Road**  
**Thunder Bay, Ontario P7B 5E1**

- 2.8** It is the sole responsibility of each potential bidder to check the Lakehead University Purchasing website on a regular basis for addendum.  
<https://www.lakeheadu.ca/faculty-and-staff/departments/services/finance/purchasing/tenders>

Should any question be considered relevant to all bidders, the University will provide both the question and the written answers in an addendum, which shall be posted in the same manner and place as the original RFQ. Bidders are solely responsible for ensuring the University has a current address and fax number on file for the bidder.

- 2.9 In the event the bidder cannot comply with any term, condition, or requirement of this Request for Quotation, such non-compliance must be clearly noted on the bidder's letterhead and submitted with the quotation. Bidders are cautioned that such non-compliance may result in disqualification of the bidder's quotation. No allowance will be made for un-noted, non-compliance of any kind, by the bidder.
- 2.10 No other representative of the University is to be contacted regarding this Request for Quotation. The University accepts no responsibility for, and the bidder agrees not to rely upon, any verbal or written statements or representations from any other person, whether or not employed by the University.
- 2.11 The laws of the Province of Ontario shall apply to this Request for Quotation and any contract formed as a result of this Request for Quotation and the Courts of Ontario shall have exclusive jurisdiction over any contract formed as a result of this Request for Quotation.
- 2.12 The Lakehead University's name, logo, crest, or other brand identifiers, shall not be used without the prior written consent of the University.

### **SECTION III: EVALUATION**

- 3.1 Lakehead University intends to award a contract to the bidder whose quotation offers the best value to the University. However, the University is under no obligation to award any contract in whole or in part and the University reserves the right in its sole discretion to cancel this Request for Quotation process at any time before or after closing without providing reasons for such cancellation. The evaluation may include a bidder presentation and system demonstration.

**The lowest or any quotation may not necessarily be accepted.**

- 3.2 All quotations will be evaluated upon the following criteria:

- a) Price 50%
- b) Proposed team & qualifications 10%
- c) Experienced with similar projects: 40%

The bidder shall be competent and possess an acceptable experience level verifying its capability of successfully performing the various items of work involved in this project. Complete the attached bid documents, listing experience in similar work, describing specific projects undertaken in the last 5 years, complete with client references. List senior staff assigned to this project, indicating the supervisor, who will be in attendance at the site of work. List all proposed sub-contactors.

- 3.3 Any award made by the University shall be made in writing and shall be subject to the availability of funding at the time of award, (if any).
- 3.4 In the event of mathematical errors in extension of prices or other ambiguities, unit prices shall govern over total bid prices and words shall govern over numbers.
- 3.5 In order to obtain the most advantageous offer for the University, the University reserves the right to:
  - a) to waive irregularities and/or minor non-compliance by any bidder with the requirements of this Request for Quotation

- b) to request clarification and/or further information from one or more bidders after closing without becoming obligated to offer the same opportunity to all bidders
- c) to enter into negotiations with one or more bidders without being obligated to negotiate with, or offer the same opportunity to, all bidders.

Bidders are advised however to submit a complete offer as their bid. Any waiver, clarification or negotiation will not be considered as an opportunity for bidders to correct errors in their bids.

- 3.6 The University shall not be responsible for any expenses or charges incurred by a bidder in preparing or submitting a quotation nor in providing any additional information considered necessary by the University for evaluation of quotations.
- 3.7 The University reserves the right in its sole discretion to amend this Request for Quotation at any time prior to close of bidding and bidders are cautioned to ensure they have received all addenda (if any) prior to submitting a bid.

## SECTION IV: AWARD OF CONTRACT

- 4.1 The successful bidder (if any) may not assign or subcontract any of the award contracts without the prior written consent of the University.
- 4.2 **Indemnification:** The successful Bidder shall indemnify Lakehead University for all damage suffered by it as a result of the negligent actions or wrongful acts of the successful Bidder, its employees, servants and/or agents. The successful Bidder shall indemnify and hold harmless Lakehead university, its Board of Governors, students, employees, servants and/or agents from all claims, demands, losses, costs, damages, actions, suits, or proceedings initiated by third parties arising from the negligence of the successful Bidder, its employees, servants, and/or agents.
- 4.3 **General Liability Insurance:** The successful Bidder must carry general liability insurance with a limit of not less than **\$5,000,000 inclusive per occurrence** for bodily injury (including death), and damage to property including the loss of the use thereof. Such insurance shall include coverage for broad form property damage, contractual liability, completed operations and product liability, and non-owned automobile liability and such other types of insurance, as would be carried by a prudent person and as Lakehead University may from time to time require. Lakehead University shall be named as an **additional insured** on the policy, but only with respect to the operations of the successful Bidder.
- 4.4 This quotation shall be open for acceptance by the owner for a period of **sixty (60) days** after close date and time. The owner reserves the right to accept any quotation, and to reject any or all quotations. The contract documentation will consist of the Request for Quotation, the successful Bidder's submission, and a standard University Purchase Order.

Invoices shall be accompanied by a Workplace Safety and Insurance Board Clearance Certificate and a Statutory Declaration, certifying that monies have been appropriately distributed.

- 4.5 The successful bidder (if any) shall warrant its work and/or products for a period of not less than one (1) year from completion, installation or supply against all defects and deficiencies in manufacture, workmanship and installation. The successful bidder (if any) shall also promptly remedy or replace any defect or deficiency, in the goods or services as solely determined by the University, upon notice from the University to do so, and at no cost to the University.
- 4.6 The following policies are in effect on the owner's premises and contractors performing work on these premises are required to observe their provisions:
  - a) Smoking on University Premises

- b) Harassment and Discrimination Policy and Procedures
- c) Lakehead University Traffic & Parking Regulations
- d) Hot Work Permit procedure for work that involves potential sources of ignition.

Copies of these policies may be reviewed at the Physical Plant office (Avila Main Floor room number 151). For parking requirements other than short-term stops for delivery of materials, obtain and pay for parking permits in accordance with Lakehead University regulations.

**4.7 Successful bidders are to submit** the following documentation:

- a) Prior to commencement of work, (and with each invoice) a Workplace Safety and Insurance Board of Clearance Certificate
- b) Prior to commencement of work, a copy of the firm's Health and Safety Policy and Procedures
- c) Prior to commencement of work a list with names and contact numbers for all personnel associated with servicing the contract.
- d) Shop drawings for Owner's review (when applicable)
- e) Certificates of Inspection for electrical installations issued by the authority having jurisdiction (when applicable)
- f) Product operation, maintenance and warranty information (when applicable)
- g) Record drawings showing "as-built" conditions (when applicable)

**4.8** Perform work in accordance with Occupational Health and Safety Act, Regulations for Construction Projects, WHMIS Regulation, and Regulation respecting Asbestos on Construction Projects in Building and Repair Operations. A report identifying asbestos containing materials which may be encountered in this project will be provided by the Owner. Erect barricades or hoarding as required to protect the public, workers and public and private property from injury or damage. Delineate project site with appropriate, legible signage. Enclose electric arc welding site with opaque screening to protect passerby from eye injury caused by flashes. Securely cover openings in building envelope resulting from construction activity to prevent entry of unauthorized persons. All persons on a project site shall wear protective headwear.

**4.9** Perform electrical work in conformity to the Ontario Electrical Safety Code. Provide Owner with minimum 24-hour advance notice of requirement for disconnecting power supply circuits. Circuits shall be locked out of service and tagged by both the Owner's electrician and the contractor's electrician, with the Owner's lock being attached first and removed last.

The Owner reserves the right to require the contractor to remove from the site any of its personnel not properly observing or complying with the safety requirements prescribed herein or policies listed in paragraph 4.8.

**4.10** Interruption of building services during occupied periods is not permitted except with Owner's express consent. Provide 24-hour advance notice of requirements for interruptions to the building services for making connections thereto. At least one week prior to intended time of interruption, arrange to review locations and condition of service shutoff equipment with owner's maintenance staff to ensure that it is functional and will effectively isolate the point at which connections must be made. Perform work in accordance with owner's Lock and Tag Procedure. Prior to performing work in machine rooms or other spaces containing elevator equipment, consult with the firm contracted by Owner to provide elevator maintenance service.

**4.11** Should the successful bidder (if any) fail to remedy any defect of deficiency promptly with a reasonable time after notice to do so, the University may remedy the defect or deficiency, at the successful bidder's (if any) cost.

- 4.12 Any products supplied and installed by the successful bidder (if any) shall be installed in such a manner as to preserve any and all manufacturer's warranties, for the benefit of the University.
- 4.13 The University and the successful bidder (if any) acknowledge and agree that they are independent contractors in a contract for goods and/or services and no employer – employee, partnership nor agency relationship is intended or created by their agreement.
- 4.14 Notwithstanding the above, while at Lakehead University, personnel of the successful bidder (if any) must observe all regulations and policies of the University including parking and traffic regulations. Vehicles shall be parked in areas, at the successful bidder's (if any) expense, as directed by the Security Manager.
- 4.15 In addition to any rights of termination at law or in equity, Lakehead university shall have the right to terminate any contract formed with the successful bidder (if any) upon written notice to the successful bidder.

## **SECTION V: OWNER'S SAFETY REQUIREMENTS**

### **5.1 EXPECTATIONS**

It is intended that the provisions of this section be implemented for any construction project undertaken on the Owner's premises.

All provisions of this section may not apply for a given project. The Contractor is responsible for ensuring that applicable provisions are implemented.

At the request of the Contractor, for a given project the Owner shall provide direction on the applicability of any provision of this section.

## 5.2 DESCRIPTION OF WORK

Conform to provisions of the Lakehead University HEALTH & SAFETY policy applicable to the Project, and to relevant requirements of the Physical Plant Health & Safety procedures described in this section.

Remove from the Owner's property and dispose of hazardous materials in accordance with subsistent regulations applicable thereto and as otherwise specified. Hazardous materials include: ACM; materials contaminated with mould.

## 5.3 REFERENCES

- .1 EPA  
General – Waste Management – O.R. 347
- .2 OHSA  
Construction Projects – O.R. 213/91  
Confined Spaces – O.R. 632/05  
Control of Exposure to Biological and Chemical Agents – O.R. 833  
Designated Substance – Asbestos – O.R. 837  
Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations – O.R. 278/05  
Regulation for Industrial Establishments – O.R. 851  
WHMIS – O.R. 860  
First Aid Requirements – O.R.1101
- .3 CSA
  - i. CSA Z462, Workplace electrical safety
- .4 CSAO
  - i. Trenching Safety - Publication M026 (ISBN 0-919465-50-1)
  - ii. Basics of Fall Protection – User's Guide Publication M053 (ISBN 0-919465-86-2)
  - iii. Contractor's Guide – Effective Health and Safety Programs (ISBN 0-919465-89-7)
  - iv. Emergency Response Planning for Construction Projects – Publication B030
- .5 Trades Qualification and Apprenticeship Act
- .6 OBC
  - i. IAQ Guidelines for Occupied Buildings Under Construction – SMACNA (OBC B6.2.1.1.(1)(g))
- .7 Lakehead University Emergency Procedures & Information pamphlet
- .8 Physical Plant Procedures
  - .1 Asbestos in Non-Construction Areas
  - .2 Hot Work Permit
  - .3 Mould Protocol
  - .4 Lockout/Tagout
  - .5 Confined Space Procedure
  - .6 Electrical Safe Work Procedures

## 5.4 SUBMISSIONS

- .1 Submit to the Owner, the following documents in accordance with Submission Schedule:
  - .1 Lakehead University Contractor's Safety Checklist duly completed and signed by the representative of the Contractor at the pre-construction meeting.
  - .2 Within ten (10) days after confirmation of award:  
Contractor's workplace emergency response procedure in accordance with O.R. 213/91 s. 17(1)  
MOL Notice of Project to O.R. 213/91 s. 6(3) (if required)  
Documentation of the supervisor's qualifications including photocopies of certificates
  - .3 Reports of hazardous materials test results within five (5) days after performance of testing therefor.
  - .4 Minutes of proceedings JHSC established pursuant to OHSA s. 9(4) within five (5) days after the date of a meeting thereof.
  - .5 Prior to Substantial Performance of the Work:  
Certificates of final inspection issued by the respective authorities having Jurisdiction;  
MSDS for Project materials.

## 5.6 FLEXIBLE ELECTRICAL CORD

Flexible cord used for transmission of electric energy to temporary electrical equipment: CSA type SOW, or more stringent designation; consisting of copper conductors having minimum 14 AWG size and receptacles of 5-15R configuration for 125 V-15 AMPERE service; bearing legible markings identifying CSA type, and quantity and gauge of conductors. If any outdoor use is required, a CSA certified, Ground Fault Interrupter (GFI) is required.

## 5.7 EXECUTION

- .1 Exercise a standard of care appropriate to the circumstances by taking all reasonable precautions to protect the health and safety of workers, the *Owner's* constituents and public personnel.
- .2 Perform the *Work* in accordance with provisions of OHSA Regulations for Construction Projects, WHMIS Regulation, Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations, and any regulation pertaining to the Project.
- .3 Perform electrical work in conformity to the Ontario Electrical Safety Code. At the direction of the *Owner*, **immediately remove from the work place** flexible cord that does not conform to specifications in provision **5.6** of this section, or that is deemed at the discretion of the *Owner* solely to be unsafe or not in proper working condition.
- .4 Provide the *Owner* with minimum 24 hour advance notice of requirement for disconnecting power supply circuits or building mechanical services. Energy-isolating devices shall be closed, locked out of service and tagged in accordance with Reference **5.3.8**, which requires the following sequence of actions by the Contractor.
  - 1 Phone the Physical Plant work order desk, 343-8273, (or from 3:30PM – 8:30AM, Security Services, 343-8569) to arrange for the lockout services of a Lakehead University employee (the operator).

- 2 Obtain from the operator an ID number for the lockout/tagout occurrence. Ensure that the ID number and related information are entered on the Lockout Record Sheet at the lockout station for the building in which the lockout/tagout occurs.
- 3 Ensure that the operator's padlock is secured to the lockout hasp and tagged. Secure the Contractor's padlock to the lockout hasp complete with a tag identifying the name of the worker, the date/time and the lockout/tagout ID number. Enter the necessary information, sign and date the log book at the building lockout station.
- 4 Following completion of the Work remove the worker's padlock and tag and immediately notify the operator. Record the worker's name, date/time and lockout/tagout ID number on the Lockout Record Sheet, at the building lockout station.
- .5 Provide a guard or other device that prevents access to any exposed more part or pinch point on equipment constituent to the Work that may endanger the safety of any worker.
- .6 Establish, document and instruct workers in implementation of an emergency response procedure for the Project in accordance with Reference **5.3.8**, or equivalent guideline. Post the procedure document conspicuously at the workplace.
- .7 Notwithstanding any other provision herein contained, do not proceed with any work when to do so would involve any risk to the safety of persons or property. Immediately report the full circumstances of the situation to the Owner and obtain from the Owner and implement such instructions as are necessary to enable the Work to proceed without such risk.
- .8 Immediately report to the *Owner* and authorities having jurisdiction any accident or incident involving the Contractor, *Owner*, public personnel and/or property arising from execution by the Contractor of the Work.
- .9 The *Contractor* and any trade contractor or agent shall inform the Owner of any notices, warnings, or asserted violations issued by any authorities having jurisdiction relative to the work.
- .10 The *Owner* reserves the right to require the Contractor to remove from the workplace any of its personnel not properly observing or complying with the Owner's prescribed safety requirements or policies.

## **5.8 SITE SECURITY**

1. Erect barricades or hoarding as required to protect the public, workers and public and private property from injury or damage.
2. Demarcate workplace with appropriate, legible signs.
3. Exercise control over the operation of construction equipment to ensure protection of vehicles and pedestrians using University or municipal thoroughfares adjacent to the workplace.

4. Enclose electric arc welding sites with opaque screening to protect passerby from eye injury caused by flashes.
5. Securely cover openings in building envelope resulting from construction activity to prevent entry of unauthorized persons.

#### **5.10 FIRE SAFETY**

1. Perform work that may involve a source of ignition, or that may generate air contaminants (eg. dust) in sufficient concentration to activate smoke alarms, in accordance with Reference **5.3.8**, which requires the following sequence of actions by the Contractor:
  - 1 Review workplace and check precautions taken on right side of permit form.
  - 2 Enter information on the left side of permit form and obtain signature of Physical Plant supervisor for the Project.
  - 3 Leave PART 1 of permit form with Physical Plant supervisor
  - 4 Submit PART 2 of permit form at Security Office in University Centre –Security Services will arrange for an electrician to deactivate fire alarm signals.
  - 5 Post PART 3 of permit form at workplace.
  - 6 Complete hot work by 3:00PM and maintain a fire watch for ONE (1) hour t hereafeter.
  - 7 Inform Security Services (343-8569) when fire watch has expired.
- ii. Phone 343-8911 (Security Services) to report a fire.

#### **END OF DOCUMENT**

**APPENDIX A – Campus Map, Floor Plans**

**APPENDIX B – ACM to be removed**

**APPENDIX C – Specifications for Removal of ACM and Reinstatement of Removed Materials**

**APPENDIX D – Applied Fire Proofing**

**APPENDIX E – Allowances**

**APPENDIX F – Bid Form**

## **ASBESTOS ABATEMENT**

### **TYPE 2 OPERATION – INTERMEDIATE PRECAUTIONS**

#### **Part 1            General**

#### **1.1                SUMMARY**

- .1        Asbestos containing (AC) sprayed fireproofing (SPF) must be removed from structural beams. Suspended ceiling (non-AC) are reported to be in place and these are to be removed and disposed of as asbestos waste.
  
- .2        Comply with requirements of this Section, when performing the following Work which is considered to be an Ontario Regulation 278/05 Type 2 Asbestos Operation.
  - .1        Removing or otherwise disturbing less than or equal to 1 square metre (m2) of AC SFP, if the material is wetted and the work is done by means of non-powered, hand-held tools.

.2 Removal and disposal of non-AC ceiling tiles to gain access to the ceiling space containing AC SFP.

.3 Removal of any friable ACM encountered in the general work area (eg. pipe elbow insulation) if there is less than or equal to 1 square metre (m<sup>2</sup>) of the material and if the material is wetted and the work is done by means of non-powered, hand-held tools.

.4 The use of glove bags to remove AC pipe insulation.

.3 Contractor will comply with the requirements for air sampling as described in Section 3.3 Air sampling will be completed by Consultant designated by the Owner. Costs associated with asbestos inspections and air sampling and analysis, shall be covered by the Contractor. A cash allowance of \$5,000 has been provided to cover asbestos inspection and air sampling and analysis.

## **1.2 SECTION INCLUDES**

.1 Requirements and procedures for asbestos abatement of minor amounts of Chrysotile asbestos-containing materials (ACM) of the type described within and for removal of non-AC ceiling tiles to gain access to a ceiling space containing AC SFP.

## **1.3 RELATED SECTIONS**

.1 Asbestos Abatement – Type 3 Operations

.2 Allowances

.3 Section V– Owner’s Safety Requirements

## **1.4 REFERENCES**

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.205-94, Sealer for Application of Asbestos-Fibre Releasing Materials.

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).

.1 Material Safety Data Sheets (MSDS)

.3 Transport Canada (TC).

.1 Transportation of Dangerous Goods Act, 1992 (TDGA)

.4 Underwriters’ Laboratories of Canada (ULC).

.5 Ontario Occupational Health and Safety Act (OHSA).

.6 Ontario Environmental Protection Act (EPA)

.1 O.Reg. 347/90 – General – Waste Management.

## **1.5 DEFINITIONS**

.1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any dimension at 99.97% efficiency.

.2 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

.3 Asbestos-Containing Materials (ACM): materials identified under Existing Conditions Article, including fallen materials and settled dust.

.4 Minor Amounts of ACM: less than or equal to 1 m<sup>2</sup> of friable material containing chrysotile asbestos.

.5 Asbestos Work Area: area where work takes place which will, or may disturb ACM.

- .6 Authorized Visitors: Owner, Engineer, Architect, Consultant, or designated representatives, and representatives of regulatory agencies.
- .7 Friable Material: material that when dry can be crumbled or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.
- .8 Glove Blag: prefabricated glove bag as follows:
  - .1 Minimum thickness 0.25mm (10mil) polyvinyl-chloride bag
  - .2 Integral 0.25mm (10mil) thick polyvinyl-chloride gloves and elastic ports.
  - .3 Equipped with reversible double-pull double throw zipper on top and at approximately mid-section of the bag.
  - .4 Straps for sealing ends around pipe.
  - .5 Must incorporate internal closure strip it is to be moved or used in more than one specific location.
- .9 Occupied Area: any area of building or work site that is outside Asbestos Work Area.
- .10 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope for work.

## 1.6 SUBMITTALS

- .1 Submit proof satisfactory to Consultant that asbestos removal methods will satisfy requirements for Type 2 procedures.
  - .1 If, in the opinion of the Consultant, the Contractor's proposed work methods do not meet the intent of this section, carry out work in accordance with Asbestos Abatement – Type 3 Operations.
  - .2 The onus is on the Contractor to select the appropriate removal method to satisfy regulatory requirements and these specifications.
- .2 Submit proof satisfactory to Consultant that suitable arrangements have been made to dispose of AC waste in accordance with requirements of authority having jurisdiction.
- .3 Submit Provincial and/or local requirements for Notice of Project Form.
- .4 Submit proof of Contractor's Asbestos Liability Insurance.
- .5 Submit necessary permits for transportation and disposal of asbestos containing waste (ie. A certificate of approval for a waste management system to haul asbestos waste) and proof that asbestos-containing waste has been received and properly disposed.
- .6 Submit proof satisfactory that employees have had instruction on hazards of asbestos exposure, respiratory use, dress, entry and exit from Asbestos Work Area, and aspects of work procedures and protective measures.
  - .1 Training to meet or exceed requirements of O.Reg. 278/05.
- .7 Submit proof that supervisory personnel have attended asbestos abatement course. There shall be a minimum of one supervisor for every 10 workers.
  - .1 Training to meet or exceed requirements of O.Reg.278/05.
- .8 Submit proof satisfactory to the Owner that sub-contractors are qualified and meet training requirements according to existing legislation.
- .9 Submit Workplace Safety and Insurance Board status and transcription of insurance.
- .10 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:
  - .1 encapsulants;

- .2 amended water;
- .3 slow-drying sealer

## 1.7 QUALITY ASSURANCE

- .1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications more stringent requirements applies. Comply with regulations in effect at the time work is performed.
- .2 Health and Safety:
  - .1 Safety Requirements: worker protection.
    - .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:
      - .1 Full face, powered or non-powered, air purifying respirator equipped with HEPA filter cartridges, personally issued to worker and marked as to efficiency and purpose, as specified in Table 2 of O.Reg.278/05, and acceptable to Authority having jurisdiction as suitable for type of asbestos and level of asbestos exposure in Asbestos Work Area. If disposable type filters are used, provide sufficient filters so that workers can install new filters following disposal of used filters and before re-entering contaminated areas.
      - .2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres, consisting of full-body covering including head coverings with snug-fitting cuffs at wrists, ankles and neck.
    - .2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.
    - .3 Before leaving Asbestos Work Area, dispose of protective clothing as contaminated waste as specified.
    - .4 Ensure workers wash hands and face when leaving Asbestos Work Area. Facilities for washing to be located proximal to the Work Area.
    - .5 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.
  - .2 Visitor Protection:
    - .1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.
    - .2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.
    - .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

## 1.8 WASTE MANAGEMENT

- .1 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6mm bags or leak proof drums. Label containers with appropriate warning labels.
- .2 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

## **1.9 EXISTING CONDITIONS**

- .1 Asbestos is present in the following building materials as indicated in Appendix B.
- .2 The Contractor is to satisfy himself as to the exact known quantity and location of ACM for the removal, included in this tender.
- .3 Notify the Consultant of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Consultant.

## **1.10 SCHEDULING**

- .1 Hours of Work: 8:30am - 4:30pm; although it is flexible.
- .2 Inform sub-trades of presence of friable asbestos-containing materials identified in Existing Conditions.
- .3 Submit to Owner a copy of notifications to start of Work.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Drop and Enclosure Sheets
  - .1 Polyethylene: 0.15mm thick.
  - .2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.
- .2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos-containing material.
- .3 Waste Containers: contain waste in two separate containers.
  - .1 Inner container: 0.15mm thick sealable polyethylene bag or, where glove bag method is used, glove bag itself.
  - .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15mm thick sealable polyethylene bag.
  - .3 Labeling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site.
- .4 Glove bag:

- .1 Acceptable materials: safe-T-Strip products in configuration suitable for Work, or Alternative material approved by addendum during tendering period in accordance with Instructions to Tenderers.
- .2 Glove bags intended for use in more than one location must be equipped with reversible, double-pull, double-throw zipper on top and at approximately mid-section of bag.
- .5 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.
- .6 Slow – drying sealer: non-staining, clear, water – dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
  - .1 Sealer: flame spread and smoke developed rating less than 50.

**Part 3 Execution**

**3.1 SUPERVISION**

- .1 Minimum of one Supervisor for every ten workers is required.
- .2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos-containing materials.

**3.2 PROCEDURES**

- .1 Before beginning Work, at each access to Asbestos Work Area, install warning signs in both official languages in upper case ‘Helvetica Medium’ letters reading as follows, where number in parentheses indicates font size to be used: ‘CAUTION ASBESTOS HAZARD AREA (25mm) / NO UNAUTHORIZED ENTRY (19mm) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19mm) / BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7mm)’.
- .2 Before beginning Work remove visible dust from surfaces in work area where dust is likely to be disturbed during course of work. This does not include the top side of any non-AC ceiling tiles that will be removed to gain access to the ceiling space. Removal of any ceiling tiles in this area must be completed AFTER an enclosure has been constructed for the space.
  - .1 Use HEPA vacuum, or damp cloths where damp cleaning does not create hazard and is otherwise appropriate.
  - .2 Do not use compressed air to clean up or remove dust from any surface.
- .3 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.
  - .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in work areas where dust or contamination cannot otherwise be safely contained.

- .2 Securely cover or remove from the work area any equipment or furniture inside of it.
  - .3 Use an enclosure of polyethylene or other suitable material that is impervious to asbestos (including, if the enclosure is opaque, one or more transparent window areas to allow observation of the entire work area from outside the enclosure), if the work area is not enclosed by walls.
  - .4 Disable the mechanical ventilation system serving the work area.
  - .5 Seal the ventilation ducts to and from the work area.
- .4 Separation of Work Areas from Occupied Areas:
- .1 Separate parts of building required to remain in use from parts of building used for asbestos abatement by means of airtight barrier system constructed as follows:
    - .1 Build suitable floor to ceiling lumber or metal stud framing, cover with polyethylene sheeting sealed with tape, and apply 9mm minimum thick plywood. Seal joints between plywood sheets and between plywood and adjacent materials with surface film forming type sealer, to create airtight barrier.
    - .2 Cover plywood barrier with polyethylene sealed with tape, as specified for work areas.
  - .5 Remove loose material by HEPA vacuum including any loose material found on the topside of non-AC, suspended acoustic ceiling tiles; thoroughly wet friable material containing asbestos to be removed or disturbed before and during Work unless wetting creates hazard or causes damage.
    - .1 Use garden reservoir type low – velocity sprayer or airless spray equipment capable of producing mist or fine spray.
    - .2 Perform Work in a manner to reduce dust creation to lowest levels practicable.
  - .6 Remove non-AC suspended acoustic ceiling tiles and immediately bag for disposal.
  - .7 Remove t-bar support system, clean using wet methods or HEPA vacuum. The cleaned support system can be disposed of as non-asbestos construction waste.
  - .8 Pipe Insulation Removal Using Glove Bag:
    - .1 Place tools necessary to remove insulation in tool pouch. Wrap the bag around pipe and close zippers. Seal bag to pipe with cloth straps.
    - .2 Place hands in gloves and use necessary tools to remove insulation. Arrange insulation in bag to obtain full capacity of bag.
    - .3 Insert nozzle of a garden reservoir type sprayer into bag through valve and wash down pipe and interior of bag thoroughly. Wet surface of insulation in lower section of bag.
    - .4 When glove bags are intended for use at more than one location: After wash-down and application of sealer, seal off waste in lower section of bag using zipper at mid-section of bag. Remove air from top section bag through the elasticized valve using a HEPPA

vacuum. Remove bag from pipe, reinstall in new location, and reseal to pipe prior to opening the lower section of the bag. Repeat stripping operations.

.5 If bag is to be moved along pipe, first remove air from top section through the elasticized valve using a HEPA vacuum. Next loosen straps, move bag, re-seal to pipe using double-pull zipper to pass hangers. Repeat stripping operation.

.6 To remove bag after completion of stripping, wash top section and tools thoroughly. Remove air from top section through the elasticized valve using a HEPA vacuum. Pull polyethylene waste container over glove bag before removing from pipe. Release one strap and remove freshly washed tools. Place tools in water. Remove second strap and zipper. Fold over into waste container and seal.

.7 After removal of bag ensure that pipe is free of all residue. Remove all residue using HEPA vacuum or wet cloths. Ensure that surfaces are free of sludge which, after drying, could release asbestos dust into atmosphere. Seal exposed surfaces of pipe insulation with polyethylene taped in place.

.9 Work is subject to visual inspection and/or air monitoring. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected area. Contractor to assume all costs of any required re-cleaning.

.10 Clean-up:

.1 Frequently during Work and immediately after completion of work, clean up dust and asbestos-containing waste using HEPA vacuum or by damp mopping.

.2 Place dust and AC waste, including non-AC suspended acoustic ceiling tiles, in sealed dust-tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.

.3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.

.4 Seal and remove double-bagged waste from site. Dispose of in accordance with requirements of Federal, Provincial and Municipal authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.

.11 Following completion of work, polyethylene sheeting used for barriers and enclosures shall be cleaned up by HEPA vacuuming and damp mopping. All barriers shall be left in place until approval to tear down is received from the Consultant. Notify Consultant of completion of work and arrange for clearance inspection, providing minimum 24 hours advanced notice.

.12 Contractor shall forthwith rectify any deficiencies identified by the Consultant during any of the inspections at not cost to the Owner.

- .13 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.
- .14 Re-establish mechanical and electrical systems in proper working order. Install new filters.

### **3.3 AIR MONITORING**

- .1 Consultant shall collect a minimum of three (3) air samples in the Work Area prior to commencement of any abatement work (including set up of scaffolding, drop sheets, barriers or other activities related to the removal).
- .2 Final air monitoring will be conducted following removal of AC SFP according to the Type 3 Asbestos Abatement specifications which are part of this package.
- .3 From the beginning of Work until completion of cleaning operations, Consultant reserves the right to collect air samples inside and outside the enclosure.
  - .1 If air monitoring shows that areas outside work area enclosures are contaminated, enclose, maintain and clean these areas, in same manner as that applicable to work areas. Work done by the Contractor subsequent to discovery of contamination outside of enclosure shall be at no cost to the Owner.

### **3.4 INSPECTION**

- .1 The following inspections will be completed by the Consultant over the duration of the work. The Contractor is to provide minimum 24 hours notice to the Consultant to arrange for inspections. Asbestos Abatement Work shall not proceed until each inspection is completed and approval to proceed is obtained from the Consultant.
  - .1 Initial Inspection: following completion of hoarding erection but prior to the commencement of removal.
  - .2 Visual Inspection: following settling period but prior to application of slow-drying sealer to surfaces of the work area.
- .2 All inspections shall be performed to confirm compliance with specification and governing authority requirements. Deviation from these requirements that have not been approved in writing by Consultant may result in Work stoppage, at no cost to Owner.
- .3 During inspection the Consultant will inspect Work for:
  - .1 Adherence to specific procedures and materials.
  - .2 Final cleanliness and completion.
  - .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.
- .4 When asbestos leakage from Asbestos Work Area has occurred or is likely to occur Consultant may order Work shutdown.
  - .1 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

**END OF SECTION**

## **ASBESTOS ABATEMENT**

### **TYPE 3 OPERATION – MAXIMUM PRECAUTIONS**

#### **Part 1           General**

#### **1.1               SUMMARY**

- .1       Comply with requirements of this Specification for removal of asbestos containing sprayed fireproofing in all Work areas. This work is considered to be a Type 3 asbestos operation as described in Ontario Regulation 278/05 (O.Reg.278/05). Removal of suspended ceilings and support system and other ACM in the general work area (eg. pipe insulation) may be completed as part of this Type 3 operation if not already completed as part of the Type 2 operation.
- .2       Contractor will comply with the requirements for air sampling described in Section 3.6. Air sampling will be completed by the Consultant designated by the Owner. Costs associated with asbestos inspections and air sampling and analysis shall be covered by the Contractor. A cash allowance of \$5,000.00 has been provided to cover asbestos inspection and air sampling and analysis.

#### **1.2               SECTION INCLUDES**

- .1       Requirements and procedures for asbestos abatement of major amounts of friable asbestos-containing materials of the type described within.

#### **1.3               RELATED SECTIONS**

- .1       Asbestos Abatement, Type 2 Operation – Intermediate Precautions
- .2       Allowances

- .3 Specifications for Applied Fireproofing
- .4 Section V – Owner’s Safety Requirements

#### 1.4

##### REFERENCES

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.205-94, Sealer for Application of Asbestos-Fibre Releasing Materials.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
  - .1 Material Safety Data Sheets (MSDS).
- .3 Transport Canada (TC)
  - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .4 Underwriter’s Laboratories of Canada (ULC).
- .5 Ontario Occupational Health and Safety Act (OHSA).
  - .1 O.Reg. 278/05 – Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations.
  - .2 O.Reg.490/09 – Designated Substances
- .6 Ontario Environmental Protection Act (EPA)
  - .1 O.Reg.347/90 – General – Waste Management

#### 1.5

##### DEFINITIONS

- .1 Polyethylene sheeting sealed with tape: Polyethylene sheeting of type and thickness specified sealed with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide continuous polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of asbestos fibres through sheeting into clean area.
- .2 DOP Test: testing method used to determine integrity of negative Pressure unit using dioctyl phthalate (DOP) HEPA-filter leak test.
- .3 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.
- .4 Negative pressure: system that extracts air directly from work area, filters such extracted air through High Efficiency Particulate Air filtering system, and discharges this air directly outside work area to exterior of building.
- .5 Airlock: system for permitting ingress or egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two curtained doorways at least 2m apart.

- .6 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed follows:
  - .1 Place two overlapping sheets of polyethylene over existing or temporarily framed doorway, secure each along top of doorway, secure vertical edge of other sheet along opposite vertical side of doorway.
  - .2 Reinforce free edges of polyethylene with duct tape and weight bottom edge to ensure proper closing.
  - .3 Overlap each polyethylene sheet at openings not less than 1.5m on each side.

## 1.6 SUBMITTALS

- .1 Before beginning Work:
  - .1 Obtain from appropriate agency and submit necessary permits for transportation and disposal of asbestos waste (ie. A certificate of approval for a waste management system to haul asbestos waste). Ensure that dump operator is fully aware of hazardous nature of material begin dumped, and proper methods of disposal. Submit proof satisfactory that suitable arrangements have been made to receive and properly dispose of asbestos waste.
  - .2 Submit proof satisfactory that employees have had instruction on hazards of asbestos exposure, respirator use, dress, use of showers, entry and exit from work areas, an aspects of work procedures and protective measures. Ensure supervisory personnel have attended asbestos abatement course, of not less than two days duration. Submit proof of attendance in form of certificate. Minimum of one Supervisor for every ten workers. Training must meet current Ministry of Training, Colleges and Universities (MTCU) requirements for Type 3 asbestos abatement work.
  - .3 Submit proof satisfactory that asbestos removal methods will satisfy requirement for Type 3 procedures.
    - .1 The onus is on the Contractor to select the appropriate removal method to satisfy regulatory requirements and these specifications.
  - .4 Submit documentation including test results for sealer proposed for use.
  - .5 Submit Provincial requirements for Notice of Project Form.
  - .6 Submit proof of Contractor's Asbestos Liability Insurance.
  - .7 Submit proof that employees have respirator fitting and testing. Works must be fit-tested (irritant smoke test) with respirator that is personally issued.
  - .8 Submit proof satisfactory to the Owner that sub-contractors are qualified and meet training requirements according to existing legislation.
  - .9 Submit Workplace Safety and Insurance Board status and transcription of insurance.

.10 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including but not limited to following:

- .1 encapsulants;
- .2 amended water;
- .3 slow-drying sealer.

## **1.7 QUALITY ASSURANCE**

- .1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to asbestos, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies.. Comply with regulations in effect at time work is performed.
- .2 Health and Safety:
  - .1 Safety requirements: worker and visitor protection.
    - .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area includes:
      - .1 Full face, powered or non-powered, air purifying respirator equipped with HEPA filter cartridges, personally issued to work and marked as to efficiency and purpose, as specified in Table 2 of O.Reg.278/05, and acceptable to Authority having jurisdiction as suitable for type of asbestos and level of asbestos exposure in Asbestos work Area. If disposable type filters are used, provide sufficient filters so that workers can install new filters following disposal of used filters and before re-entering contaminated areas.
      - .2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres, consisting of full-body covering including head covering with snug-fitting cuffs at wrists, ankles and neck.
    - .2 Requirements for each worker:
      - .1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters that have been tested as satisfactory, clean coveralls and head covers before entering Equipment and Access Rooms or Asbestos Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.
      - .2 Remove gross contamination from clothing before leaving work area then proceed to Equipment and Access Room and remove clothing except respirators. Place contaminated worksuits in receptacles for disposal with other asbestos-contaminated materials. Leave reusable items except respirator in Equipment and Access Room. Still wearing the respirator proceed naked to showers. Using soap and water wash body and hair

thoroughly. Clean outside of respirator with soap and water while showering; remove respirator; remove filters and wet them and dispose of filters in container provided for purpose; and wash and rinse inside of respirator. When not in use in Work Area, store work footwear in Equipment and Access Room. Upon completion of asbestos abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area or from Equipment and Access Room.

.3 After showering and drying off, proceed to clean change room and dress in street clothes at end of each day's work, or in clean coveralls before eating, smoking, or drinking. If re-entering Work Area, follow procedures outlined in paragraphs above.

.4 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of Container and Equipment Decontamination Enclosure system. Workers must not use this system as means to leave or enter work area.

- .3 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.
- .4 Ensure workers are fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual asbestos abatement.
- .5 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.
- .6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.
- .7 Visitor Protection:
  - .1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.
  - .2 Instruct Authorized visitors in the use of protective clothing, respirators and procedures.
  - .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

## **1.8 WASTE MANAGEMENT AND DISPOSAL**

- .1 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6 mil polyethylene bags or leak proof drums. Label containers with appropriate warning labels.

- .2 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

## **1.9 EXISTING CONDITIONS**

- .1 Asbestos is present in the following building materials, as indicated in the Appendix B.
- .2 The Contractor is to satisfy himself as the exact quantity and location of ACM for disturbance or removal as part of the current project.
- .3 Notify Owner of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Owner.

## **1.10 SCHEDULING**

- .1 Not later than ten (10) days before Work on this project, notify following in writing:
  - .1 Ontario Ministry of Labour
  - .2 Disposal Authority
- .2 Inform sub-trades of presence of friable asbestos-containing materials identified in the Existing Conditions.
- .3 Submit to Owner copy of notifications prior to start of Work.
- .4 Hours of Work: 8:30 - 4:30; although it is flexible.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Polyethylene: minimum 0.15 mm thick unless otherwise specified; in sheet size to minimize joints.
- .2 FR Polyethylene: minimum 0.15 mm thick, woven fibre reinforced fabric bonded both sides with polyethylene.
- .3 Tape: fiberglass – reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.
- .4 Wetting agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether, or other approved material, mixed with water in concentration to provide adequate penetration and wetting of asbestos-containing material.
- .5 Asbestos waste containers: Metal or fibre – type acceptable to dump operator with tightly fitting covers and 0.15mm minimum thickness sealable polyethylene liners.
  - .1 Label containers in accordance with applicable Asbestos and TDGA Regulations. Label in both official languages.

- .6 Slow – drying sealer: non-staining, clear, water – dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
- .1 Sealer: flame spread and smoke developed rating less than 50.

### **Part 3 Execution**

#### **3.1 PREPARATION**

- .1 Work Areas:
  - .1 Shut off and isolate air handling and ventilation systems to prevent fibre dispersal to other building areas during work phase. Conduct smoke tests to ensure that duct work is airtight. Seal and caulk joints and seams of active return air ducts within Asbestos Work Area.
  - .2 Pre-clean moveable furniture within proposed work areas using HEPA vacuum and remove from work areas to temporary location as specified by Client.
  - .3 Pre-clean fixed casework, plant, and equipment within proposed work areas, using HEPA vacuum and cover with polyethylene sheeting sealed with tape.
  - .4 Clean proposed work areas using, where practicable, HEPA vacuum cleaning equipment. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum equipment.
  - .5 Put negative pressure system in operation and operate continuously from time first polyethylene is installed to seal openings until final completion of work including final cleanup. Provide continuous monitoring of pressure difference using automatic recording instrument.
  - .6 Seal off openings such as corridors, doorways, windows, skylights, ducts, grilles, and diffuser, with polyethylene sheeting sealed with tape.
  - .7 Cover floor and wall surfaces with polyethylene sheeting sealed with tape. Use minimum one layer of FR polyethylene on all surfaces. Cover floors first so that polyethylene extends at least 300mm up walls then cover walls to overlap floor sheeting.
  - .8 Build airlocks at entrances to and exists from work areas so that work areas are always closed off by one curtained doorway when workers enter or exit.
  - .9 At each access to work areas install warning signs in both official languages, in upper case “Helvetica Medium” letters reading as follows where number in parentheses indicates font size to be used: “CAUTION ASBESOS HAZARD AREA (25mm) NO UNAUTHORIZED ENTRY (19mm) WEAR ASSIGNED PROTECTIVE EQUIPMENT (19MM) BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7mm)”.

.10 After work area isolation, remove heating, ventilating, and air condition filters, pack in sealed plastic bags 0.15mm minimum thick and treat as contaminated asbestos waste.

.11 Ensure suitable emergency and fire exit is provided from work area to satisfy the requirements of the Ontario Fire Marshall's Office or any other Authority having jurisdiction.

.12 Where application of water is required for wetting asbestos-containing materials, shut off electrical power, provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.2 Worker Decontamination Enclosure System:

.1 Work Decontamination Enclosure System includes Equipment and Access Room, Shower Room, and Clean Room, as follows:

.1 Equipment and Access Room: build Equipment and Access Room between Shower Room and work area, with two curtained doorways, one to Shower Room and one to work area. Install portable toilet, waste receptor, and storage facilities for workers' shoes and protective clothing to be re-worn in work area. Build Equipment and Access Room large enough to accommodate specified facilities, other equipment needed, and at least one worker allowing him/her sufficient space to undress comfortably.

.2 Shower Room: build Shower Room between Clean Room and Equipment and Access Room, with two curtained doorways, one to Clean Room and open to Equipment and Access Room. Provide one shower for every five workers. Provide constant supply of hot and cold or warm water. Confirm with building maintenance staff on locations of hot water, cold water and drains to common sewers. Provide piping and connect to water sources and drains. Provide soap, clean towels, and appropriate containers for disposal of used respirator filters.

.3 Clean Room: build Clean Room between Shower Room and clean areas outside of enclosures, with two curtained doorways, one to outside of enclosures and one to Shower Room. Provide lockers or hangers and hooks for worker's street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.

.3 Container and Equipment Decontamination Enclosure System:

.1 Container and Equipment Decontamination Enclosure System consists of Staging Area within work area, Washroom, Holding Room, and Unloading Room. Purpose of system is to provide means to decontaminate waste containers, scaffolding, waste and material containers, vacuum and spray equipment, and other tools and equipment for which Worker Decontamination enclosure System is not suitable.

.1 Staging Area: designate Staging Area in work area for gross removal of dust and debris from waste containers and equipment, labeling and sealing of waste

containers, and temporary storage pending removal to Washroom. Equip Staging Area with curtained doorway to Washroom.

.2 Washroom: build Washroom between Staging Area and Holding Room with two curtained doorways, one to Staging Area and one to Holding Room. Provide high – pressure low – volume sprays for washing of waste container and equipment. Pump waste water through 5 micrometre filter system before directing into drains. Provide piping and connect to water sources and drains.

.3 Holding Room: build Holding Room between Washroom and Unloading Room, with two curtained doorways, one to Washroom and one to Unloading Room. Build Holding Room sized to accommodate at least two waste containers and largest item of equipment used.

.4 Unloading Room: build Unloading Room between Holding Room and outside, with two curtained doorways, one to Holding Room and one to outside.

.4 Construction of Decontamination Enclosures:

- .1 Build suitable framing for enclosures or use existing rooms where convenient, and line with polyethylene sheeting sealed with tape. Use minimum one layer of FR polyethylene on floor.
- .2 Build curtained doorways between enclosures so that when people move through or when waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.

.5 Separation of Work Areas from Occupied Areas:

- .1 Separate parts of building required to remain in use from parts of building used for asbestos abatement by means of airtight barrier system constructed as follows:
  - .1 Build suitable floor to ceiling lumber or metal stud framing, cover with polyethylene sheeting sealed with tape, and apply 9mm minimum thick plywood. Seal joints between plywood sheets and between plywood adjacent materials with surface film forming type sealer, to create airtight barrier.
  - .2 Cover plywood barrier with polyethylene sealed with tape, as specified for work areas.

.6 Maintenance of Enclosures:

- .1 Maintain enclosures in tidy condition.
- .2 Ensure that barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.
- .3 Visually inspect enclosures at beginning of each working period.
- .4 Use smoke methods to test effectiveness of barriers when directed by Consultant.

.7 Do not begin Asbestos Abatement work until:

- .1 Arrangements have been made for disposal of waste.
- .2 For wet stripping techniques, arrangements have been made for containing, filtering, and disposal of waste water.
- .3 Work area and decontamination enclosures and parts of building required to remain in use are effectively segregated.
- .4 Tools, equipment, and materials waste containers are on hand.
- .5 Arrangements have been made for building security.
- .6 Warning signs are displayed where access to contaminate areas is possible.
- .7 Notifications have been completed and other preparatory steps have been taken.
- .8 Consultant has been notified and initial inspection has been completed. Following completion of hoarding erection, notify Consultant and arrange for initial inspection, providing minimum 24 hours notice. Do not proceed with removal work until approval from Consultant is obtained.

### **3.2 SUPERVISION**

- .1 Minimum of one Supervisor for every ten workers is required.
- .2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos-containing materials.

### **3.3 ASBESTOS REMOVAL**

- .1 Before removing asbestos:
  - .1 Prepare site.
  - .2 Spray asbestos material with water container specified wetting agent, using airless spray equipment capable of providing “mist” application to prevent release of fibres. Saturate asbestos material sufficiently to wet it to substrate without causing excess dripping. Spray asbestos material repeatedly during work process to maintain saturation and to minimize asbestos fibre dispersion.
- .2 Remove any suspended ceiling and associated support system. As they are being removed, pack them in sealable plastic bags 0.15mm minimum thick and place in labeled containers for transport.
- .3 Remove all identified asbestos. Apply continuous light misting during removal. Immediately place waste in sealable plastic bags 0.15mm minimum thick and place labeled containers for transport.

- .4 Remove saturated asbestos material (SFP) in small sections. Do not allow saturated asbestos to dry out. As it is being removed pack material in sealable plastic bags 0.5mm minimum thick and place in labeled containers for transport.
- .5 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure that containers are removed from Holding Room by workers who have entered from uncontaminated area dressed in clean coveralls.
- .6 After completion of stripping work, wire brush and wet-sponge surfaces from which asbestos has been removed to remove visible material. During this work keep surfaces wet.
- .7 After wire brushing and wet sponging to remove visible asbestos, wet clean entire work area including Equipment and Access Room, and equipment used in process. After 24 hour period to allow for dust settling, wet clean these areas and objects again. During this settling period under same conditions, clean these areas and objects again using HEPA vacuum followed by wet cleaning. After inspection by Consultant apply continuous coat of slow drying sealer to surfaces of work area. Allow at least 16 hours with no entry, activity, ventilation, or disturbance other than operation of negative pressure units during this period.
- .8 Notify Consultant and arrange for final clearance inspection and air sampling, providing minimum 24 hours advanced notice.
- .9 Contractor shall forthwith rectify any deficiencies identified by the Consultant during any of the inspections at no cost to the Owner.

### **3.4 FINAL CLEANUP**

- .1 Following cleaning specified in Section 3.3 above, and when air sampling shows that asbestos levels inside the enclosure do not exceed 0.01 fibres/cc as determined by membrane filter method at 400-500X magnification phase contrast illumination, as described in NIOSH Method 7402, proceed with final cleanup. (NOTE: Sections of the hoarding may be left in place for use to protect the area during subsequent application of new fireproofing material. This will depend on the condition of the hoarding and drop sheet materials following removal activities. Consultant will provide direction.)
- .2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible asbestos-containing particles observed during cleanup, immediately, using HEPA vacuum equipment.
- .3 Place polyethylene seals, tape, cleaning material, clothing, and other contaminated waste in plastic bags and sealed labeled waste containers for transport.
- .4 Include in clean-up Work areas, Equipment and Access Room, Washroom, Shower Room, and other contaminated enclosures.

- .5 Include in cleanup sealed waste containers and equipment used in Work and remove from work areas, via Container and Equipment Decontamination Enclosure System, at appropriate time in cleaning sequence.
- .6 Conduct final check to ensure that no dust or debris remains on surfaces as result of dismantling operations.
- .7 As work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labeled containers containing asbestos waste and dispose of to authorized disposal area in accordance with requirements of disposal authority. Ensure that each shipment of containers transported to dump is accompanied by Contractor's representative to ensure that dumping is done in accordance with governing regulations.

### **3.5 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS**

- .1 When clean up is complete:
  - .1 Apply non-asbestos sprayed fireproofing to abated section according to the specifications for Applied Fireproofing provided as part of Appendix C.
  - .2 Re-establish objects and furniture moved to temporary locations in course of Work, in their proper positions.
  - .3 Re-secure mounted objects removed in course of Work, in their former positions.
  - .4 Re-establish mechanical and electrical systems in proper working order. Install new filters.
  - .5 Repair or replace objects damaged in the course of Work, as directed by Consultant.
  - .6 Re-instate new ceiling tiles and any required support system.

### **3.6 AIR MONITORING**

- .1 Consultant shall collect a minimum of three (3) air samples in the Work Area prior to commencement of any abatement work (including set up of scaffolding, drop sheets, barriers or other activities related to the removal).
- .2 From beginning of Work until completion of cleaning operations, Consultant reserves the right to collect air samples inside and outside the enclosure.
  - .1 Contractor will be responsible for monitoring asbestos concentrations inside enclosure in accordance with applicable Provincial Occupational Health and Safety Regulations.
- .3 Use results of air monitoring inside work area to establish type of respirators to be used. Workers may be required to wear sample pumps for up to full-shift periods.
  - .1 If fibre levels are above safety factor of respirators in use, stop abatement, apply means of dust suppression, and use higher safety factor in respiratory protection for persons inside enclosure.
  - .2 If air monitoring shows that areas outside work area enclosures are contaminated, enclose, maintain and clean these areas, in same manner as that applicable to work areas.

- .4 Final air monitoring to be conducted as follows: After Asbestos Work Area has passed visual inspection and acceptable coat of lock-down agent has been applied to surfaces within enclosure, and appropriate settling period has passed, Consultant will perform air monitoring within Asbestos Work Area.
  - .1 Final air monitoring results must show fibre levels of less than 0.01 f/cc.
  - .2 If air monitoring results show fibre levels in excess of 0.01 f/cc, re-clean work area and apply another acceptable coat of lock-down agent to surfaces.
  - .3 Repeat as necessary until fibre levels are less than 0.01 f/cc.

### **3.7 INSPECTION**

- .1 The following inspections will be completed by the Consultant over the duration of the work. The Contractor is to provide minimum 24 hours notice to the Consultant to arrange for inspections. Asbestos Abatement Work shall not proceed until each inspection is completed and approval to proceed is obtained from the Consultant.
  - .1 Initial Inspection: following completion of hoarding erection but prior to the commencement of removal.
  - .2 Visual Inspection: following settling period but prior to application of slow-drying sealer to surfaces of the work area.
  - .3 Final Clearance Inspection and Air Sampling: following application of slow-drying sealer (minimum 16 hours after application of sealer).
- .2 All inspections shall be performed to confirm compliance with specification and governing authority requirements. Deviation from these requirements that have not been approved in writing by Consultant may result in Work stoppage, at no cost to Owner.
- .3 During inspections the Consultant will inspect Work for:
  - .1 Adherence to specific procedures and materials.
  - .2 Final cleanliness and completion.
  - .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.
- .4 When asbestos leakage from Asbestos Work Area has occurred or is likely to occur, Consultant may order Work shutdown.
  - .1 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

**END OF SECTION**

### **SPECIFICATIONS for APPLIED FIREPROOFING**

#### **Part 1 General**

## **1.1 REFERENCES**

- .1 Underwriters Laboratories of Canada (ULC)
  - .1 CAN/ULC-S101, 1989.
  - .2 CAN/ULC-S102, 1988.

## **1.2 TEST REPORTS**

- .1 Submit product data including certified copies of test reports verifying fireproofing applied to substrate as constructed on project will meet or exceed requirements of Specification.
- .2 Submit test results in accordance with CAN/ULC-S101 for fire endurance and CAN/ULC-S102 for surface burning characteristics.
- .3 For assemblies not tested and rated, submit proposals based on related designs using accepted fireproofing design criteria.

## **1.3 PROTECTION**

- .1 Provide temporary enclosures to prevent spray from contaminated air beyond application area.
- .2 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of fireproofing materials.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Sprayed fireproofing: ULC certified cementitious fireproofing qualified for use in ULC Designs specified. Product to have a minimum 1 hour fire rating.
- .2 Curing compound: type recommended by fireproofing manufacturer, qualified for use in ULC Designs specified.
- .3 Sealer: type recommended by fireproofing manufacturer, qualified for use in ULC Design specified.
- .4 Paint: type suitable for painting sprayed fireproofing installed. Colour: blue, to match #7408 "Sunrise River", by Cloverdale.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Substrate shall be free of material, which would impair bond.
- .2 Verify that painted substrates are compatible and have suitable bonding characteristics to receive fireproofing.

- .3 Remove incompatible materials.
- .4 Ensure that items required to penetrate fireproofing are placed before installation of fireproofing.
- .5 Ensure that ducts, piping, equipment, or other items which would interfere with application of fireproofing are not positioned until fireproofing work is completed.

### **3.2 APPLICATION**

- .1 Fireproofing shall be applied to all surfaces from which asbestos-containing fireproofing was removed under this contract.
- .2 Apply bonding adhesive or primer to substrate if recommended by manufacturer.
- .3 Apply fireproofing over substrate, building up to required thickness to cover substrate with monolithic blanket of uniform density and texture.
- .4 Apply fireproofing directly to open web joists without use of expanded lath.
- .5 Tamp smooth, surfaces visible in finished work.
- .6 Apply curing compound to surface of cementitious fireproofing as required by manufacturer.
- .7 Apply sealer to surface of mineral fibre fireproofing as required by manufacturer where fireproofing is to be painted and as indicated.
- .8 Apply paint to surface of mineral fibre fireproofing as required by manufacturer.

### **3.3 INSPECTION**

- .1 Inspection of fireproofing will be carried out by Consultant.

## **END OF SECTION**

## **ALLOWANCES**

### **Part 1 General**

#### **1.1 SECTION INCLUDES**

- .1 Cash Allowances

#### **1.2 REFERENCES**

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-[1994], Stipulated Price Contract

**1.3**

**CASH ALLOWANCES**

.1 Include in Contract Price, cash allowances stated herein.

.2 Cash Allowances, unless otherwise specified, cover net cost to Contractor of services for asbestos inspections and sample collection and analysis incurred in performing Work.

.3 Contract Price, and not cash allowance, includes Contractor's overhead and profit in connection with such cash allowance.

.4 Contract Price will be adjusted by written order to provide for an excess or deficit to each cash allowance.

.5 Where costs under a cash allowance exceed amount of allowance, Contractor will be compensated for any excess incurred and substantiated plus an allowance for overhead and profit as set out in Contract Documents.

.6 Progress payments on accounts of work authorized under cash allowances shall be included in Consultant's monthly certificate for payment.

.7 Schedule payments on accounts of work authorized under cash allowances shall be included in Consultant's monthly certificate for payment.

.8 Amount of each allowance, for Work specified in respective specification Sections is as follows:

.1 Asbestos Abatement sections include an allowance of \$5,000.00 for asbestos inspection and sampling and analysis required as part of the project.

**END OF SECTION**

## **APPENDIX A – Campus Map, Floor Plans**

Available at:

<https://www.lakeheadu.ca/sites/default/files/uploads/113/campus-maps/tb-campus-map.pdf>

## **APPENDIX B – Asbestos to be Removed**

See additional PDF files posted.

## **APPENDIX C – Specifications for Removal of ACM and Reinstatement of Removed Materials**

## APPENDIX F – Bid Form

### Owner

Legal Name: **Lakehead University**

Address for Service: 955 Oliver Road  
Thunder Bay, ON P7B 5E1

### Bidder

Legal Name: \_\_\_\_\_

Address for Service: \_\_\_\_\_

City \_\_\_\_\_ Province \_\_\_\_\_ Postal Code \_\_\_\_\_

**Bid Price #1: Residence only (Prettie and Bartley)**

Having examined the bid documents as listed in Appendix "A" to this Stipulated Price Bid and Addenda No. \_\_\_\_\_ to \_\_\_\_\_ inclusive, all as issued by **Lakehead University**, and having visited the Place of the Work, we hereby offer to enter into a contract to perform the Work required by the bid documents for the stipulated price of:

\_\_\_\_\_/100 Dollars \$ \_\_\_\_\_

in Canadian funds including Ontario sales tax but **excluding the Federal Goods and Services Tax.**

**Bid Price #2: Main Campus only**

\_\_\_\_\_/100 Dollars \$ \_\_\_\_\_

in Canadian funds including Ontario sales tax but **excluding the Federal Goods and Services Tax.**

**Interest**

Should either party fail to make payments as they become due *under the terms of the Contract*, interest at **zero** percent (0%) per annum on such unpaid amounts shall also become due and payable until payment; and

Should either party fail to make payments as they become due *in an award by arbitration or court*, interest at **prime** plus **zero** percent (0%) per annum on such unpaid amounts shall also become due and payable until payment.

**Declarations**

We hereby declare that:

- (a) we agree to perform the Work in compliance with the required completion schedule stated in the bid documents or, if no schedule is stated, to attain Substantial Performance of the Work \_\_\_\_\_ weeks from commencement of the Work;
- (b) the earliest date for commencement of the Work is: \_\_\_\_\_ ;
- (c) no person, firm, or corporation other than the undersigned has any interest in this bid or in the Work for which this bid is submitted;
- (d) this bid is open to acceptance for a period of **sixty** (60) days from bid closing.

**Signatures**

SIGNED AND SUBMITTED for and on behalf of:

\_\_\_\_\_  
*Name of Bidder (please print)*

\_\_\_\_\_  
*Signature*

*Affix Seal Above*

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Name and Title of Person Signing (please print)

**Witness**

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Signature

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Signature

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Name and Title of Person Signing (please print)

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Name and Title of Person Signing (please print)

Date: \_\_\_\_\_

N.B.

*Where legal jurisdiction or Owner requirement calls for:*

- (a) proof of authority to execute this bid, attach such proof of authority in the form of a certified copy of a resolution naming the representative(s) authorized to sign this bid for and on behalf of the Corporation or Partnership; or*
- (b) the affixing of a corporate seal, this bid must be properly sealed.*

**APPENDIX "B" – PROJECT EXPERIENCE IN SIMILAR WORK**

Following is the list of our experience in work of a similar nature and scope to the requirements for the above-named project:

Year*	Project Title & Description of Work	Owner & Location	Value of Work (\$)

**2015 Campus Asbestos Abatement  
Lakehead University, Thunder Bay Campus**

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*\* Include projects carried out within the last 5 years only.*

**APPENDIX "C" – SENIOR STAFF ASSIGNED TO THIS PROJECT**

Following is the list of senior staff members that we intend to assign to the above-named project:

<b>Name</b>	<b>Duties for this Project*</b>	<b>Work History &amp; Experience</b>

**2015 Campus Asbestos Abatement  
Lakehead University, Thunder Bay Campus**

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*\* Indicate supervisor who will be in attendance at the Place of the Work while work is being performed.*

**2015 Campus Asbestos Abatement  
Lakehead University, Thunder Bay Campus**

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**APPENDIX "D" – SUBCONTRACTORS TO BE USED FOR THIS PROJECT**

Following is the list of subcontractors that we propose to use on the above-named project for the sub-trades indicated:

*(List All Subcontractors)*

<b>Sub-Trade</b>	<b>Name of Subcontractor</b>	<b>Value of Work (\$)</b>

**2015 Campus Asbestos Abatement  
Lakehead University, Thunder Bay Campus**

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