

**RETURN BIDS TO:**  
**RETOURNER LES SOUMISSIONS À:**  
**Bid Receiving - PWGSC / Réception des  
soumissions - TPSGC**  
**11 Laurier St. / 11, rue Laurier**  
**Place du Portage, Phase III**  
**Core 0A1 / Noyau 0A1**  
**Gatineau, Québec K1A 0S5**  
**Bid Fax: (819) 997-9776**

**REQUEST FOR PROPOSAL**  
**DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government  
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services  
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

|  |  |  |
|--|--|--|
| <b>Title - Sujet</b><br>ROLLING MILL   |  |  |
| <b>Solicitation No. - N° de l'invitation</b><br>23584-130012/A   | <b>Date</b><br>2012-05-09              |  |
| <b>Client Reference No. - N° de référence du client</b><br>23584-130012  |  |  |
| <b>GETS Reference No. - N° de référence de SEAG</b><br>PW-\$\$HN-445-60428   |  |  |
| <b>File No. - N° de dossier</b><br>hn445.23584-130012  | <b>CCC No./N° CCC - FMS No./N° VME</b> |  |
| <b>Solicitation Closes - L'invitation prend fin</b><br><b>at - à 02:00 PM</b><br><b>on - le 2012-06-20</b>   |  | <b>Time Zone</b><br><b>Fuseau horaire</b><br>Eastern Daylight Saving<br>Time EDT |
| <b>F.O.B. - F.A.B.</b><br><b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>  |  |  |
| <b>Address Enquiries to: - Adresser toutes questions à:</b><br>Ladouceur, Joanne M.  |  | <b>Buyer Id - Id de l'acheteur</b><br>hn445                                      |
| <b>Telephone No. - N° de téléphone</b><br>(819) 956-3587 ( )   | <b>FAX No. - N° de FAX</b><br>( ) -    |  |
| <b>Destination - of Goods, Services, and Construction:</b><br><b>Destination - des biens, services et construction:</b><br>DEPARTMENT OF NATURAL RESOURCES<br>183 LONGWOOD RD SOUTH<br>HAMILTON<br>Ontario<br>L8P0A5<br>Canada |  |  |

**Instructions: See Herein**

**Instructions: Voir aux présentes**

**Vendor/Firm Name and Address**  
**Raison sociale et adresse du**  
**fournisseur/de l'entrepreneur**

|  |  |
|--|--|
| <b>Delivery Required - Livraison exigée</b><br>See Herein  | <b>Delivery Offered - Livraison proposée</b> |
| <b>Vendor/Firm Name and Address</b><br><b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>   |  |
| <b>Telephone No. - N° de téléphone</b><br><b>Facsimile No. - N° de télécopieur</b>   |  |
| <b>Name and title of person authorized to sign on behalf of Vendor/Firm</b><br><b>(type or print)</b><br><b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b><br><b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b> |  |
| <b>Signature</b>   | <b>Date</b>                                  |

**Issuing Office - Bureau de distribution**  
Electrical & Electronics Products Division  
11 Laurier St./11, rue Laurier  
6B1, Place du Portage, Phase III  
Gatineau, Québec K1A 0S5

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## PART 1 - GENERAL INFORMATION

### 1. Security Requirement

There is no security requirement associated with the requirement.

### 2. Requirement

The contractor will be required to provide the goods in accordance with the technical requirements stated herein at Annex A.

#### 2.1 Delivery Requirement

Delivery **MUST** be completed by March 31, 2014.

#### 2.2 Delivery Offered

While delivery is requested as indicated above, the best delivery that could be offered is\_\_\_\_\_.

#### 2.3 Contractor Contacts

Name and telephone number of the person responsible for :

##### General enquiries

Name: \_\_\_\_\_  
 Telephone No. \_\_\_\_\_  
 Facsimile No. \_\_\_\_\_  
 E-mail address: \_\_\_\_\_

##### Delivery follow-up

Name: \_\_\_\_\_  
 Telephone No. \_\_\_\_\_  
 Facsimile No. \_\_\_\_\_  
 E-mail address: \_\_\_\_\_

### 3. Debriefings

After contract award, bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

**You are reminded that this solicitation requires the compliance and/or completion of requirements attached as an Annex and forming part of this document.**

## PART 2 - BIDDER INSTRUCTIONS

### 1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions (<http://ccua-sacc.tpsgc-pwgsc.gc.ca/pub/acho-eng.jsp>) Manual issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The standard instructions and conditions 2003 (16/05/2011) are incorporated by reference into and form part of the bid solicitation.

Section 5.4 of 2003, Standard Instructions - Goods or Services, is amended as follows:

Delete: sixty (60) calendar days

Insert: ninety (90) calendar days

#### 1.1 SACC Manual Clauses

| SACC Reference | Section               | Date     |
|----------------|-----------------------|----------|
| A9033T         | Financial Capability  | 16/05/11 |
| B1000T         | Condition of Material | 30/11/07 |

### 2. Submission of Bids

Bids must be submitted **ONLY TO PUBLIC WORKS AND GOVERNMENT SERVICES CANADA (PWGSC) BID RECEIVING UNIT** by the date, time and place indicated on page 1 of the bid solicitation.

Due to the nature of the bid solicitation, bids transmitted by *facsimile* to PWGSC will not be accepted.

### 3. Enquiries - Bid Solicitation

All enquiries must be submitted to the Contracting Authority no later than five (5) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

#### 4. Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

#### 5. Mandatory Site Visit

It is mandatory that the Bidder or a representative of the Bidder visit the work site. Arrangements have been made for the site visit to be held **at Natural Resources Canada on Wednesday, May 30 at 10:30 a.m. Interested Bidders shall meet at the Main Entrance of the Natural Resources Canada, 183 Longwood Street, South, Hamilton, Ontario L8P 0A5.**

The onus is on the bidders to arrive at the site visit in a timely manner. **Bidders arriving late may not be permitted to attend the site visit.**

Bidders interested in attending the site visit are requested to advise PWGSC by fax to (819) 953-4944 or by e-mail to joanne.m.ladouceur@pwgsc-tpsgc.gc.ca. **no later than Monday, May 28, 2012.** Bidders are requested to clearly identify the name of the participant and the name of the company they represent.

Bidders should submit in writing to the Contracting Authority, a list of issues that they wish to table and the language they would like to address questions and answers, no later than five (5) calendar days prior to the scheduled site visit.

Bidders are advised that any clarifications or changes resulting from the site visit shall be included as an amendment to the bid solicitation document through MERX.

### PART 3 - BID PREPARATION INSTRUCTIONS

#### 1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid ( 2 copies)  
Section II: Financial Bid ( 1 copy)  
Section III: Certifications ( 2 copies)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests bidders to follow the format instructions described below in the preparation of their bid.

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

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In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders are encouraged to:

- 1) use paper containing fibre certified as originating from a sustainably-managed forest and/or containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

**SECTION I: TECHNICAL BID (2 COPIES)**

In their technical bid, bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

**SECTION II: FINANCIAL BID (1 COPIES)**

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Goods and Services Tax (GST) or Harmonized Sales Tax (HST) is to be shown separately, if applicable.

**Exchange Rate Fluctuation**

The requirement does not provide for exchange rate fluctuation protection. Any request for exchange rate fluctuation protection will not be considered and will render the bid non-responsive.

**Pricing Basis**

The bidder must quote firm lot prices in Canadian dollars, DDP Delivered Duty Paid (Hamilton, Ontario), the Goods and Services Tax (GST) and/or the Harmonized Sales Tax (HST) extra, as applicable. Freight charges to destination and all applicable Custom duties and Excise taxes must be included.

**SECTION III: CERTIFICATIONS (2 COPIES)**

Bidders must submit the certifications required under Part 5.

**PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION****1. Evaluation Procedures**

Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria specified below.

**Evaluation Criteria**

All bids must be completed in full and provide all of the information requested in the bid solicitation to enable full and complete evaluation.

## 1.1 Technical Evaluation

### 1.1.1 Mandatory Technical Evaluation

To be declared responsive, a bid must:

- a) address on a paragraph by paragraph basis the Statement of Work, by indicating where applicable "comply, understood, noted, or not applicable". Where required, the bidder should provide additional information;
- b) comply with all of the technical requirements of the Statement of Work; as well as all amendments to the bid solicitation issued prior to bid closing date;
- c) the Bidder must have designed and manufactured a minimum of two (2) of the same or similar systems within the last 5 years of bid closing;
- d) the Bidder must provide the name of two (2) different clients for which they have designed and manufactured the same or similar system within the last 5 years of bid closing. Company name, location, contact name, current telephone number and current email address must be provided;
- e) the Bidder must provide delivery by March 31, 2014. (Due to operational requirements, no work will be done beyond March 31, 2014 and the contract will be considered complete.)

## 1.2 Financial Evaluation

The following **Mandatory** factors will be taken into consideration in the evaluation of each bid:

Compliance with Pricing Basis;

The Bidder must submit firm lot prices for all items as identified in Annex C - Pricing Schedule **including firm lot prices for all options.**

The Bid price will be determined by processing items 1.1, 1.2 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 3.1, 3.2, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7 and 4.8 at Annex C as follows:

Sum of all items total price.

## 1.3 Other Mandatory Evaluation Criteria

- a) the Bidder must submit a completed proposal. In the event of a bid submitted by a contractual joint venture, the bid shall either be signed by all members of the joint venture or a statement shall be provided to the effect that the signatory represents all parties of the joint venture;
- b) acceptance of terms and conditions as mentioned in the bid solicitation;
- c) completion of the proposal.

## 1.4 Conditions/Certifications Precedent to Contract

Federal Contractors Program as specified in Part 5.

## 2. Basis of Selection

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price on an aggregate basis will be recommended for award of a contract.

## PART 5 - CERTIFICATIONS

Bidders must provide the required certifications to be awarded a contract. Canada will declare a bid non-responsive if the required certifications are not completed and submitted as requested.

Compliance with the certifications bidders provide to Canada is subject to verification by Canada during the bid evaluation period (before award of a contract) and after award of a contract. The Contracting Authority will have the right to ask for additional information to verify the bidders' compliance with the certifications before award of a contract. The bid will be declared non-responsive if any certification made by the Bidder is untrue, whether made knowingly or unknowingly. Failure to comply with the certifications or to comply with the request of the Contracting Authority for additional information will also render the bid non-responsive.

### 1. Certifications Precedent to Contract Award

The certifications listed below should be completed and submitted with the bid, but may be submitted afterwards. If any of these required certifications is not completed or submitted as requested, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid non-responsive.

#### 1.1 Federal Contractors Program - \$200,000 or more

1. The Federal Contractors Program (FCP) requires that some suppliers, including a supplier who is a member of a joint venture, bidding for federal government contracts, valued at \$200,000 or more (including all applicable taxes), make a formal commitment to implement employment equity. This is a condition precedent to contract award. If the Bidder, or, if the Bidder is a joint venture and if any member of the joint venture, is subject to the FCP, evidence of its commitment must be provided before the award of the Contract.

Suppliers who have been declared ineligible contractors by Human Resources and Skills Development Canada (HRSDC) are no longer eligible to receive government contracts over the threshold for solicitation of bids as set out in the Government Contracts Regulations. Suppliers may be declared ineligible contractors either as a result of a finding of non-compliance by HRSDC, or following their voluntary withdrawal from the FCP for a reason other than the reduction of their workforce to less than 100 employees. Any bids from ineligible contractors, including a bid from a joint venture that has a member who is an ineligible contractor, will be declared non-responsive.

2. If the Bidder does not fall within the exceptions enumerated in 3.(a) or (b) below, or does not have a valid certificate number confirming its adherence to the FCP, the Bidder must fax (819-953-8768) a copy of the signed form LAB 1168, Certificate of Commitment to Implement Employment Equity, to the Labour Branch of HRSDC.
3. The Bidder, or, if the Bidder is a joint venture the member of the joint venture, certifies its status with the FCP, as follows:



The Bidder or the member of the joint venture

- (a) ( ) is not subject to the FCP, having a workforce of less than 100 full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada;
- (b) ( ) is not subject to the FCP, being a regulated employer under the Employment Equity Act, S.C. 1995, c. 44;
- (c) ( ) is subject to the requirements of the FCP, having a workforce of 100 or more full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada, but has not previously obtained a certificate number from HRSDC (having not bid on requirements of \$200,000 or more), in which case a duly signed certificate of commitment is attached;
- (d) ( ) is subject to the FCP, and has a valid certificate number as follows: \_\_\_\_\_ (e.g. has not been declared an ineligible contractor by HRSDC.)

Further information on the FCP is available on the HRSDC Web site.

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

\_\_\_\_\_  
*Date*

## 1.2 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability. Failure to comply with the request may result in the bid being declared non-responsive.

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

\_\_\_\_\_  
*Date*

## PART 6 - RESULTING CONTRACT CLAUSES

### 1. Security Requirement

There is no security requirement associated with the requirement.

### 2. Requirement

The contractor will be required to provide the goods in accordance with the technical requirements stated herein at Annex A.

#### 2.1 SACC Manual Clauses

| SACC Reference | Section                                 | Date     |
|----------------|---|----------|
| B1501C         | Electrical Equipment                    | 16/06/06 |
| B7500C         | Excess Goods                            | 16/06/06 |
| A2000C         | Foreign Nationals (Canadian Contractor) | 16/06/06 |
| A2001C         | Foreign Nationals (Foreign Contractor)  | 16/06/06 |

#### 2.2 Optional Equipment

The Contractor shall grant to Canada an irrevocable option to purchase additional equipment. These options are open for acceptance **at the prices specified in this document during the period as follows:**

**Option Year (1) from contract award to ????? (*one year from award date*).**

The options may be exercised in whole or in part, **up to a maximum of those identified in Annex C** only by a contract amendment issued by the Contracting Authority. Upon the exercise of the options by the Contracting Authority, the contract shall be amended to incorporate the item into the work to be performed by the Contractor under the Contract, and all of the obligations of the Contractor under the Contract will apply.

Nothing contained in this Contract shall require the Minister to exercise the options and the exercise of the options is at the sole discretion of the Minister.

### 3. Standard Conditions and Clauses

All clauses and conditions identified in the Contract by number, date and title are set out in the *Standard Acquisition Clauses and Conditions* (<http://ccua-sacc.tpsgc-pwgsc.gc.ca/pub/acho-eng.jsp>) Manual issued by Public Works and Government Services Canada.

#### 3.1 General Conditions

2010A (16/05/2011) General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

#### 4. Term of Contract

##### 4.1 Delivery Date

All the deliverables must be received on or before *March 31, 2014*.

**Due to operational requirements, no work will be done beyond March 31, 2014 and the contract will be considered complete.**

#### 5. Authorities

##### 5.1 Contracting Authority

The Contracting Authority for the contract is:

*Joanne Ladouceur (M)*  
*Supply Specialist*  
 Public Works and Government Services Canada  
 Acquisitions Branch  
 Logistics, Electrical, Fuel and Transportation Directorate  
 "HN" Division  
 7B3, Place du Portage, Phase III  
 11 Laurier Street  
 Gatineau, QC, K1A 0S5

Telephone : (819) 956-3587      Facsimile: (819) 953-4944  
 E-mail address: joanne.m.ladouceur@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

##### 5.2 Project Authority

The project Authority for the Contract is:

Name: \_\_\_\_\_ *will be inserted at contract*  
 Telephone No. \_\_\_\_\_ *will be inserted at contract*  
 Facsimile No. \_\_\_\_\_ *will be inserted at contract*  
 E-mail address: \_\_\_\_\_ *will be inserted at contract*

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matter concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority, however the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

### 5.3 Contractor Contacts

Name and telephone number of the person responsible for:

#### General Enquiries

Name: will be inserted at contract  
 Telephone No. will be inserted at contract  
 Facsimile No. will be inserted at contract  
 E-mail address: will be inserted at contract

#### Delivery Follow-up

Name: will be inserted at contract  
 Telephone No. will be inserted at contract  
 Facsimile No. will be inserted at contract  
 E-mail address: will be inserted at contract

## 6. Payment

### 6.1 Basis of Payment - Firm Price or Firm Lot Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid the *firm lot prices* specified in the Contract (*Annex 'C'*). Customs duties are *included* and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

### 6.2 Limitation of Price

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

### 6.3 SACC Manual Clauses

| SACC Reference | Section                              | Date     |
|----------------|--------------------------------------|----------|
| C2611C         | Customs Duties - Contractor Importer | 30/11/07 |
| H1001C         | Multiple Payments                    | 12/05/08 |

#### 6.3.1 Insurance Requirements

The Contractor must comply with the insurance requirements specified in Annex D. The Contractor must maintain the required insurance coverage for the duration of the Contract. Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract.

The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

The Contractor must forward to the Contracting Authority within ten (10) days after the date of award of the Contract, a Certificate of Insurance evidencing the insurance coverage and confirming that the insurance policy complying with the requirements is in force. Coverage must be placed with an Insurer licensed to carry out business

in Canada. The Contractor must, if requested by the Contracting Authority, forward to Canada a certified true copy of all applicable insurance policies.

## **6.4 Method of Payment**

### **6.4.1 Milestone Payments**

1. Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract and the payment provisions of the Contract, up to 90 percent of the amount claimed and approved by Canada if:
  - (a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
  - (b) the total amount for all milestone payments paid by Canada does not exceed 90 percent of the total amount to be paid under the Contract;
  - (c) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;
  - (d) all work associated with the milestone and as applicable any deliverable required have been completed and accepted by Canada.
2. The balance of the amount payable will be paid in accordance with the payment provisions of the Contract upon completion and delivery of all Work required under the Contract if the Work has been accepted by Canada and a final claim for the payment is submitted.

### **6.4.2 Schedule of Milestones**

The schedule of milestones for which payments will be made in accordance with the Contract is as follows:

- 1st milestone: Completion and approval of engineering design and delivery of the drawings (less 10% holdback);
- 2nd milestone: Delivery of Electric motor(s), Gear box(es) (less 10% holdback);
- 3rd milestone: Fabrication and delivery of the mill stand (less 10% holdback);
- 4th milestone: Supply and delivery of the rolls (less 10% holdback);
- 5th milestone: Supply and delivery of the auxiliary support equipment, roller tables, product manipulators and entry/delivery payoff/tension reels system (less 10% holdback);
- 6th milestone: Supply and delivery of the PLC, computers and controls (less 10% holdback);
- 7th milestone: Supply and delivery of mill structure support, catwalk, equipment installation, commissioning, documentation, handover and on-site training costs including travel and living expenses (less 10% holdback);
- 8th milestone: holdbacks.

### 6.4.3 Time Verification

Time charged and the accuracy of the Contractor's time recording system are subject to verification by Canada, before or after payment is made to the Contractor. If verification is done after payment, the Contractor must repay any overpayment, at Canada's request.

## 7. Invoicing Instructions - Progress Payment Claim

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment.

Each claim must show:

- (a) all information required on form PWGSC-TPSGC 1111;
  - (b) all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
  - (c) the description and value of the milestone claimed as detailed in the Contract.
2. The Goods and Services Tax or Harmonized Sales Tax (GST/HST), as applicable, must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no GST/HST payable as it was claimed and payable under the previous claims for progress payments.
  3. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Project Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

The Project Authority will then forward the original and two (2) copies of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

4. The Contractor must not submit claims until all work identified in the claim is completed.

## 8. Certifications

Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

## 9. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

## 10. Procedures for Design Change or Additional Work

These procedures must be followed for any design change or additional work.

### 1. When Canada requests design change or additional work:

- (a) The Technical Authority will provide the Contracting Authority with a description of the design change or additional work in sufficient detail to allow the Contractor to provide the following information:
  - (i) any impact of the design change or additional work on the requirement of the Contract;
  - (ii) a price breakdown of the cost (increase or decrease) associated with the implementation of the design change or the performance of the additional work using either the form PWGSC-TPSGC 1686, Quotation for Design Change or Additional Work, or the form PWGSC-TPSGC 1379, Work Arising or New Work, both of which are available on the PWGSC Website <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html> or any other form required by Canada;
  - (iii) a schedule to implement the design change or to perform the additional work and the impact on the contract delivery schedule.
- (b) The Contracting Authority will then forward this information to the Contractor.
- (c) The Contractor will return the completed form to the Contracting Authority for evaluation and negotiation. Once agreement has been reached, the form must be signed by all parties in the appropriate signature blocks. This constitutes the written authorization for the Contractor to proceed with the work, and the Contract will be amended accordingly.

### 2. When the Contractor requests design change or additional work:

- (a) The Contractor must provide the Contracting Authority with a request for design change or additional work in sufficient detail for review by Canada.
- (b) The Contracting Authority will forward the request to the Technical Authority for review.
- (c) If Canada agrees that a design change or additional work is required, then the procedures detailed in paragraph 1 are to be followed.
- (d) The Contracting Authority will inform the Contractor in writing if Canada determines that the design change or additional work is not required.

### 3. Approval

The Contractor must not proceed with any design change or additional work without the written authorization of the Contracting Authority. Any work performed without the Contracting Authority's written authorization will be considered outside the scope of the Contract and no payment will be made for such work.

## 11. Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) 2010A (16/05/2011) General Conditions - Goods (Medium Complexity);
- (c) Annex "A", Statement of Work;
- (d) Annex "B", Acceptance Test Plan;
- (e) Annex "C", Pricing Schedule;
- (f) Annex "D", Commercial General Liability Insurance
- (e) the Contractor's bid dated \_\_\_\_\_ (*insert date of bid*), as amended \_\_\_\_\_ (*insert date(s) of amendment(s), if applicable*).

## 12. SACC Manual Clauses (Delivery)

| SACC Reference | Section               | Date     |
|----------------|-----------------------|----------|
| D9002C         | Incomplete Assemblies | 30/11/07 |

### 12.1 Shipping Instructions - Delivery at Destination

Goods must be consigned to the destination specified in the Contract and delivered:

Delivered Duty Paid (DDP) (Hamilton, Ontario) Incoterms 2000 for shipments from a commercial contractor.



**ANNEX "A"****STATEMENT OF WORK****1. SCOPE**

Natural Resources Canada - CanmetMATERIALS has a requirement to procure a Research and Development Reversing Rolling Mill. The objective of the equipment is to provide researchers with an essential tool for advanced materials studies to support the research and development of new products requiring hot forming of materials. It is an integral part of the laboratories capabilities.

The rolling mill will be utilized to develop and optimize, in a pilot scale environment, the required processing controls for product realization and industrial transfer. The rolling mill will be primarily used for thermo-mechanical controlled rolling simulations, studying the effects of processing parameters on the desired sheet mechanical properties. The advancements of high strength steels have illustrated the need for tighter process controls due to the highly sensitive thermo-mechanical behaviours of these new materials. The designed rolling mill will be capable of meeting these requirements.

The Contractor must provide design, manufacturing, installation, commissioning, training, manuals & drawings, and service for this equipment. This procurement will be for a laboratory scale hot and cold rolling mill which will be augmented with additional auxiliary equipment instrumentation and control systems through future acquisitions.

The Contractor must understand that no designated substances are currently present in the work area and no designated substances are to be brought onto the CanmetMATERIALS facility.

**2. REQUIREMENT**

The equipment must consist of all the hardware and software required to achieve the above objective. The equipment must not be demonstration models, used or refurbished.

- The equipment must be CSA, ESA, or ULC approved with visible markings.
- The design of equipment must follow the guidelines for Control of Hazardous Energy - Lockout and Other Methods CSA Z460 and Safeguarding of Machinery CSA Z432-10
- The successful contractor will be required to obtain all necessary permits and reviews including the ESA inspection and certification. In addition the equipment must meet the requirements of the Occupational Health and Safety Regulation for Industrial Establishments, section 7: Pre-Start Health and Safety Review. It will be the responsibility of the contractor to make any modifications necessary to meet the section 7 requirements.

**2.1 General Design Requirements (age, size, weight)**

- As part of the submission the Contractor must submit a Project Schedule demonstrating how project requirements and deadlines will be met.
- The equipment, as assembled, must be sized for placement in Room G043, CanmetMATERIALS Building, in a pit 1,500 mm deep. The bottom of the pit is a 600 mm reinforced concrete slab sitting on engineered fill designed to support 150 kPa loading. The pit is roughly "L" shaped. It is 9 meters long by 3 meters wide. At one end the pit is 5 meters wide, and this wide section continues for 15 meters. The mill does not have to fill the entire pit, but this is the space available. Also available at grade is a space behind the pit which is

approximately 2.5 meters from the wide section of the pit to the wall, and 4.5 meters to the wall at the narrow end of the pit. The components must be designed to be fully supported by existing building structure.

- Each piece, as delivered, must conform to the building constraints as identified at para. 4.
- The contractor must insure floor support load during the equipment installation and delivery.
- The contractor must design a reversing rolling mill to meet the requirements of this specification. All aspects of the design must be based on sound engineering principles, and be consistent with accepted, modern rolling mill design. Consideration must be made in the design to facilitate servicing and repair. The Contractor must select components and parts commonly used and readily available in Canada. The goal is to design build and install a versatile and reliable mill that will give the Government of Canada value for the money spent. The rolling mill system will be used in a research and development environment, with 50% duty cycle operation over 30 years of expected service life. The successful contractor must provide engineering design for the mill. The technical authority must be provided with an explanation of the design decisions and a review of the options considered. CanmetMATERIALS is not attempting to acquire proprietary information from the contractor. If parts of the design are based on proprietary information, the specific parts of the design must be identified as such once the contract has been awarded. CanmetMATERIALS may at that point choose to sign an agreement to keep that aspect of the design confidential.
- The successful contractor must present designs to the technical authority along with the reasoning for the decisions made, and where appropriate with a discussion of alternates considered. The design must form the starting point for a more sophisticated, rolling system. It is the intention of CanmetMATERIALS to add to this basic mill with future procurements. The technical authority will agree to treat as confidential any information the contractor considers proprietary if it has to be divulged as part of this process.
- The Rolling Mill System must be composed at least of the following sub-systems:
  - Rolling Mill Housing
  - Drive assembly and rolls
  - Instrumentation, sensors and data acquisition
  - Hydraulic system
  - Roller tables
  - Roll changing equipment
  - Product Manipulators
  - Entry & Delivery Payoff - Tension Reels
  - Sample Shear
  - Cold Strip Lubrication system
  - Rolling Mill fume exhausts (if required)
  - Mill structural support and catwalk
- The mill supplied must be a 4-high reversing mill with driven working rolls.
- It must be possible to operate the mill in a two high configuration.
- The contractor must fabricate the rolling mill and assemble all necessary equipment once the design has been accepted.
- The contractor must supply and install all equipment required by this specification.
- The contractor must commission the rolling mill and demonstrate to the technical authority that it meets the design requirements.

## 2.2 Facility Integration (Environment, Connection to services)

- The equipment must be able to operate indoors, within a research facility, where humidity may vary from 0 to 100%.
- Connection to services requirements: The rolling mill and all of its components will require connection to building services such as electrical services, cooling circuit services, compressed air and ventilation. It will be the responsibility of the contractor to connect the mill to these services which will be in the vicinity

(within 3 meters) of the equipment. The Contractor must specify to CanmetMATERIALS what services are required. The Contractor must determine loads to the foundation and advise CanmetMATERIALS.

- Flooring and Trenches requirements: The rolling mill and each of its components must be reviewed for drainage requirements, water, oils or condensation. A solution must be incorporated into the layout of equipment or into the surrounding floor area to contain and collect any discharge. Provision must be made to allow the containment containers to be monitored and emptied as required.
- Electrical service available: 600 V, 3 phases, 60 Hz; 208 V, 110 V, 60 Hz or combinations of these voltages.
- Hydraulic requirements: the rolling mill will be designed with hydraulic components. The hydraulic system must be supplied with the rolling mill equipment. The location where the hydraulic supply to be installed will be determined with equipment layout drawings. Hydraulic systems will require drip trays and containment pans.
- Cooling water service available: the building is supplied with a cooling system that is expected to operate at 20 °C. Should any components require cooling the contractor must provide an adequately sized heat exchanger to ensure that the equipment cannot contaminate the building system. See para. 2.3.6 for Mandatory Heat Exchanger and/or Chiller requirements.
- Compressed Air service available: CanmetMATERIALS will provide regulated-filtered compressed air up to 0.011 m³/s (25 SCFM) at up to 0.76 MPa (110 psi). Requirements above this will have to be met using an auxiliary compressor. Compressed air piping: must be compatible with the building's ASTM B-88, type "K", hard drawn, seamless copper tubing.
- Plumbing requirements: Plumbing accessories to be provided by the Contractor. CanmetMATERIALS to provide piping and water drops. Cooling piping: must be compatible with the building's ASTM B-88 type "L" hard copper
- Gearboxes design and construction must meet AGMA standards to prevent excessive vibrations from being transmitted into the building.
- The contractor shall anchor the equipment and provide anchorage and seismic restraint system that satisfy the National Building Code of Canada. Seismic hazard level for this facility shall be class D.
- Building Leadership in Energy and Environmental Design (LEED) requirements: the equipment and related installation must not impact the building's LEED Platinum certification. High efficiency electric motors and drives must be included in the system design.
- Acoustic Noise Level requirements: the acceptable noise level shall be not more than 87dBA @ 1 m from any of the system components or engineering control must be supplied.
- Ethernet & Network Connection/ Line conditioners (filters): The data collection system must allow collected data to be transferred into commercial data processing software such as Excel through standard data transfer protocols such as Ethernet or a USB connection.
- Equipment Positioning requirements (radiant heat tubes, rebar, electrical conduit, etc.): Ground Penetrating Radar (GPR) must be used in all locations prior to drilling any hole to determine the location of electrical conduits, rebar, radiant heating systems so as to avoid damage to them. The contractor shall coordinate and perform the GPR during the equipment installation phase.

## 2.3 Equipment Functional & Technical Requirements

### 2.3.1 Rolling Mill Requirements

#### 2.3.1.1 Electrical Power:

- The electrical power system for the mill shall support a 600 HP dual drive system (two 300 HP motors) and all other ancillary equipment.
- The system must minimize line noise and harmonics back into the power supply system.
- The system must provide the appropriate power factor correction above 0.95 or better for maximum load.
- The computer systems must be protected by UPS.

**2.3.1.2 Mill Speed:**

- The mill must be able to hot roll at a maximum speed to 1500 mm per second  $\pm 5\%$ .
- The mill must be able to cold roll at a maximum speed of 800 mm per second  $\pm 5\%$ .
- The mill must be able to hot roll metal at speeds as slow as 100 mm per second  $\pm 5\%$ .
- The operator shall be able to adjust the speed continuously between the maximum and minimum speed.

**2.3.1.3 Mill Housing:**

- The mill housing must be designed to support a rolling load of 500 metric tons with an industry standard factor of safety.
- The mill housings must be designed with horizontal separator bars to ensure stability and alignment.
- The mill housing must be able to accommodate either a 2-high or a 4-high configuration.
- The mill must have a driven work rolls unless the technical authority agrees to another configuration based on a clear technical advantage.
- Mill housings must be designed to allow shimming to achieve pass line elevations.
- The mill housing must be designed to support entry and exit guide rolls as described at para. 2.3.3.1.
- The mill housing must include a hydraulic gap control system that can adjust the roll gap with the accuracy required by this specification within 3 seconds between two successive rolling passes.
- The mill must include a gap measuring transducer(s) better than  $\pm 0.01$  mm accuracy which will provide mill gap feed-back to the data collection system.
- The mill must include 0.5% accuracy roll force transducer(s) and 300 % overload capacity which can provide the data collection system with a measure of rolling load as metal is passing through the mill.
- The mill housing must include equipment required to support rolls while rolling and while the mill is not in use.
- The mill housing must be built with all required brackets and mounting points for pipes, conduit and hoses. Field device connectors must be supplied with electrical strain relief connectors and all connection points must be oriented vertically downward to prevent infiltration of water into conduit or circuit boxes.
- Consideration of terminals and reels for thermocouple connections on the side of an ingot must be made when designing the mill housing. Researchers may mount as many as 6 thermocouples in a sample before passing it into the mill.

**2.3.1.3 Mill Drive System:**

- The mill must have a 600 HP dual drive system that will use two (2) electric motors 300 HP each, and two (2) motor drives coupled to two (2) gear boxes used to drive the top and bottom rolls independently.
- CanmetMATERIALS requires the ability to synchronize drives so the motors and rolls turn at the same speed. It must be possible to introduce a speed difference to accommodate slightly unequal roll diameters or to operate with a slight speed difference asymmetric rolling.
- The mill must be powered using a variable frequency mill drive designed for the purpose. They will include a soft start feature, over current protection, over voltage protection, phase imbalance protection, and be designed to trip under other circumstances to protect the motors and drive system.
- The drive must not restart without human intervention following a power failure or trip.
- The motor and drive system must be capable of rolling in either direction (reversing mill), and the reversal time shall be to a maximum of 5 sec or better without stock on the roll gap.
- The drive system must be designed with a lubrication system and CanmetMATERIALS must be provided with a lubrication schedule which minimises wear and binding of components.

**2.3.1.4 Rolls:**

- This procurement must include: Two sets of rolls (4 rolls) for hot rolling ferrous materials.
- This procurement must include one set of rolls (2 rolls) for rolling non ferrous metals (working rolls).

- This procurement must include one set of rolls (2 rolls) for cold rolling of steel (working rolls).
- This procurement must include one set (2 rolls) of back up rolls for the 4 high configurations.
- Rolls must be mounted in chocks for insertion into the mill window. These must be designed so they do not induce spin and are stable when they are extracted from the mill.

### **2.3.2 Stock and Product specifications**

#### **2.3.2.1 Stock Thickness:**

- The mill must be designed to hot roll material up to 275 mm thick.
- The mill will not be expected to hot roll to a thickness less than 2 mm.
- The thickness to width ratio will always be less than or equal to 1.

#### **2.3.2.2 Stock Width:**

- The mill must be able to roll material up to a maximum width of 350 mm.
- The narrowest sample will be 150 mm.

#### **2.3.2.3 Stock Length:**

- Maximum plate length will be 3 meters.
- The minimum length of material that will be rolled will be 200 mm.

#### **2.3.2.4 Stock Weight:**

- The rolling mill system must be able to handle up to 210 kg billets.

#### **2.3.2.5 Product dimensions, tolerances and allowances:**

- The system shall be able to deliver products within the thickness, flatness and camber tolerances of the ASTM A568: Standard Specification for Steel, Sheet, Carbon, Structural and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled.
- Cold finish product requirement is matte within dimensional tolerances of ASTM A568.

### **2.3.3 Auxiliary and Support Equipment**

#### **2.3.3.1 Roller Tables**

- Roller tables must be installed on both sides of the rolling stand. Roller tables must be motorized and speed matched to the plate surface. The contractor should base the submission price on a total of 18 meters of roller tables. On one side of the mill CanmetMATERIALS will install a reheat furnace which is not part of this RFP. On the other side of the mill CanmetMATERIALS will install an accelerated cooling line which is an optional item described at para. 3.1 Optional Equipment Requirements. We expect 5 meters of roller table to be on the reheat furnace side of the mill and 13 meters to be on the accelerated cooling side of the mill.
- Roller tables must be equipped with guides and rolls to ensure the strip remains centred and aligned.
- The roller tables must have solid, removable stops capable of stopping a full weight plate from running off the table at either end. An incline may be used to remove energy from the plate before it hits the end stops.
- Roller table controls must be able to oscillate the hot strip when required to prevent the rolls from overheating and to promote uniform cooling of a hot rolled strip to simulate industrial air cooling.
- The mill must have entry and exit rolls to prevent the front edge from rolling around the working roll or a method to minimize curl.

#### **2.3.3.2 Roll Changing Equipment**

- The procurement must include equipment which will allow a man working alone to remove the rolls and install new rolls in 4 hours or less.

- The CanmetMATERIALS employee must not have to lift more than 40 pounds or exert himself while in an extended position.
- The mill crane may be used during the operation but the equipment must not rely exclusively on the crane roll changes.

#### 2.3.3.3 *Product Manipulators*

- CanmetMATERIALS owns two Thermcraft furnaces which will be mounted on each side of the mill. This procurement must include product manipulation equipment which will allow a plate weighing as much as 80 kg and up to 1270 mm long to be picked up off the roller table and placed in the furnace. The equipment must be able to remove the strip from the furnace and replace it on the roller table. The proposal must include a manipulator for each side of the mill, a total of two manipulators.
- This RFP does not include a reheat furnace but the contractor must know that CanmetMATERIALS intends to install a reheat furnace which will have a manipulator capable of removing an ingot from the roller table and placing it in the reheat furnace. This manipulator will be able to remove ingots from the reheat furnace and place them on the roller conveyor. The reheat furnace manipulator is not part of this RFP.

#### 2.3.3.4 *Entry & Delivery Payoff - Tension Reels*

- The equipment shall be capable of accepting pre-coiled rolled product from a third party with inner diameter of 508 mm to 762 mm.
- The equipment must be capable of making a coil at room temperature from rolled material finished on the hot mill with a minimum length of 6,000 mm, 3 mm thick, AISI 1020 steel.
- The system shall be capable of executing a cold rolling schedule under tension of up to 50 kN  $\pm$  1 % on the coil produced above.
- The design of the tension reels must use AC drives designed for "winding" applications.

#### 2.3.3.5 *Shear*

- The system must include a shear to cut stationery samples and to divide the plate being rolled.
- The shear shall be operated by hydraulic power and include a hold down clamp to fix the strip or plate during the cutting process.
- The shear must be located perpendicular to the strip length.
- The shear must be capable to cut up to 20 mm thickness of the hot steel strip full width at temperatures above 800 °C.

#### 2.3.3.6 *Cold Strip Lubrication System*

- A provision must be made to lubricate the cold rolling operation. The design must include a containment to capture oil drips.

#### 2.3.3.7 *Rolling Mill Particulate, Fume Exhausts and Ventilation*

- An Engineering Study of the ventilation, dust, vapour or gases exhaust requirements associated with the Rolling Mill operation shall be included in this procurement. The quantity of airborne mineral oils cannot exceed 5 mg/m<sup>3</sup> at any time during the operation of the rolling mill.
- The Engineering Study must include calculations and assumptions.
- The engineering study shall recommend ventilation devices with required extracting flow rates.

#### 2.3.3.8 *Mill Structural Support and Catwalk*

- Since the rolling mill system shall be installed using an existing pit and a guardrail, a Professional Engineer certified structural support must be included to support the mill and run out tables and associated components so that the pass line is approximately 1 m above the floor level. The space between the floor and the mill must be a floor made of structural grating having a load capacity meeting

the building code requirements for industrial surfaces. Design supply and installation of these support features must be included with the procurement.

#### **2.3.4 Instrumentation and Sensors**

2.3.4.1 The rolling mill procurement shall include two pyrometers with output signal to the data collection system, conveniently located and protected to detect the stock temperature on both sides the mill stand.

2.3.4.2 The procurement must include a reel or device performing a similar function to coil and feed thermocouple wires mounted in the ingot through the mill. Researchers may mount as many as 6 thermocouples in a sample before passing it into the mill. Thermocouples and thermocouple wire are not part of the RFP.

2.3.4.3 The contractor must provide a closed circuit video system with monitors at the operators control area so that parts of the mill not visible from the station can be observed. The contractor should base his price on High Definition colour cameras with colour, with minimum of 17" high resolution flat screen monitors.

##### **2.3.4.4 Calibration requirements:**

- The procurement shall include a calibration plan identifying and listing each measuring device that must be calibrated, calibration range, recommended points and frequency of calibration.
- The system design shall include calibration ports, and arrangements to facilitate the calibration operation.
- All components identified in the calibration plan must be calibrated prior to hot commissioning starting.

#### **2.3.5 Mill Control and Data Acquisition**

2.3.5.1 The mill must be controlled using a PLC (Programmable Logic Controller) based system. It is expected that the PLC will be interfaced to a computer or processor, and that the operator interface will be through an HMI (Human Machine Interface).

2.3.5.2 The PLC and rack selected must have 50% excess capacity to control the mill and the equipment. It is expected that third parties will supply PLC code and add I/O cards and additional memory as required.

2.3.5.3 The PLC must be interfaced to a computer which will operate an HMI based on a touch screen.

2.3.5.4 The procurement must include access software to the PLC and the HMI. CanmetMATERIALS must have the ability to edit the software code. PLC selected must be readily available in Canada. The Contractor must provide instructions on backing up of PLC and PC memory and data.

2.3.5.5 The operator must be able to perform functions referred to in this document using the HMI touch screen. The HMI screen must show the current position in the rolling sequence.

2.3.5.6 The operator must be able to use a menu to set rolling parameters for a rolling sequence of up to 25 passes. The system will go from one item to the next following a manual stop and re-start command. Following each restart, the mill will reset to the gap specified in the menu and reverse directions.

2.3.5.7 Once a control sequence has been established, the operator must be able to name the sequence and store at a minimum 100 sequences. The operator must be able to recall these sequences, edit them if required and save the edited version under a new name if required.

2.3.5.8 There must be a supervisory mode which is password protected. In this mode it must be possible to select the control parameters to be used in a menu. It must be possible to select the data channel to be used to acquire data. It must be possible to determine which channel will be used for control feedback purposes.

2.3.5.9 The data collection system must be able to accept and store signals from third party sensors, provided the signal is in a format accepted by the data collection system. As an example, CanmetMATERIALS may wish to use an HMD (Hot Metal Detector) signal, or a non contact temperature sensor signal or the sudden drop in rolling load to detect that material has passed through the mill. In the future this signal, rather than operator input may be used to signal the reversal of the mill.

2.3.5.10 Data must be collected from all sensors at a rate of at least 1000 Hz. There must be a minimum of 24 available data channels.

*2.3.5.11 Operator Input required:*

As a minimum, the menu input must be:

- Initial ingot thickness
- For each pass, the minimum information input must be required:
  - roll gap,
  - required roll speed,
  - minimum temperature to roll,
  - data channel to obtain temperature information,
  - roller table oscillation frequency at the end of the pass (between the time the operator presses the stop button or icon and then presses the restart button).
- The stop button or icon used by the operator to stop the mill, signalling that the ingot or plate has passed through the mill, must not be an e-stop.
- At any time between pressing the stop and restart button, the operator must be able to position the plate on the roller table using the HMI screen.
- At any time between pressing the stop and restart button, the operator must be able to transfer plate into either Thermcraft furnace or remove plate from either furnace using the HMI screen.
- At any time operates the shear.

*2.3.5.12 Feed-back to the operator:*

The operator must be able to see, at a minimum on his HMI display the following parameters:

- step in the rolling sequence
- the mill speed set point
- the actual mill speed
- the gap setting
- the actual gap from the transducer.
- the electrical motor current, frequency, torque, power output and calculated speed
- roll direction
- rolling load
- stock speed
- entry and existing tension (cold rolling)
- six channels for temperature thermocouples and pyrometer

2.3.5.13 The data acquisition system must be able to, at a minimum, feed the information seen by the operator into the data storage system.



### 2.3.6 *Heat Exchanger and Chiller Requirements*

#### 2.3.6.1 *Equipment Certifications*

- The equipment must be CSA or ULC approved with visible markings.
- The design of equipment must follow the guidelines listed below:
  - Control of Hazardous Energy - Lockout and Other Methods CSA Z460;
  - Safeguarding of Machinery-CSA Z432;
  - Performance standards for rating packaged water chillers- CSA C743;
  - Heating and Cooling Equipment-CSA-C22.2 #236-05
- All plumbing works must follow National Plumbing Code

#### 2.3.6.2 *General Design Requirements (age, size, weight)*

- The equipment must not be prototypes, demonstration models, used or refurbished.
- The equipment, as assembled, must be sized for placement in room G043 laboratory.
- Contractor to provide 40 mesh screen size strainer, on return water line.
- The coolant and construction materials must be compatible with sodium nitrite and sodium Met borate inhibitors containing process water loop.
- Details of all yellow metals used in the heat exchanger and chiller must be given.
- Use of Aluminum coils or other Aluminum alloys' parts in the heat exchanger and chiller is prohibited for this procurement

#### 2.3.6.3 *Facility Integration (Environment, Connection to services)*

- The equipment must be able to operate indoors, within a research facility, where humidity may vary from 0 to 100%.
- Electrical requirements: 600 VAC, 3 phase, 60 Hz; 208 VAC, 110 VAC, 60 Hz or combinations of these voltages. The electrical power demand must be balanced to maintain a power factor of 95% or better.
- Electrical Connections: hardwired
- Plumbing requirements: Plumbing accessories to be provided by the Contractor. CanmetMATERIALS to provide piping and water drops.
- Acoustic Noise Level requirements: Not more than 87dba @ 1 m from any of the system components or engineering control must be supplied.

## 3. **OPTIONS**

The bidder must provide firm lot prices as identified at Annex C for the following options.

- Accelerated Cooling Line
- Control Room
- Provide all documentation and training in French language
- Spare parts list & associated pricing
- Consumable parts list & associated pricing
- Provide costing for a Preventive Maintenance Service agreement. Vendor is to provide a detail description of scope of work
- An extension of the Standard Warranty by an additional 2 Years.
- Calibration services in accordance with the calibration plan over the first 2 years following installation.

### 3.1 Accelerated Cooling Line

- The Accelerated Cooling Line must achieve an average cooling rate of 240 °C per second per each mm thickness. For example: 2mm thick hot band, cooling will be 120 °C per second.
- The Accelerated Cooling Line shall be able to apply continuous and step cooling over 800 °C - 500 °C temperature range within the following variation:
  - at 10 °C/s  $\pm$  2 °C/s
  - at 240 °C/s  $\pm$  12 °C/s
  - linear interpolation within the above limits.
- Pumps, valves, piping, water reservoirs, header for water control and automation to achieve the required plate cooling rate and end cooling temperature accurately throughout the entire length and width of the plate shall be included in this procurement.
- The Accelerated Cooling Line must be a self contained system. The system shall rely on water recirculation and no water liquids may be discharged into the public sewer system.

### 3.2 Control Room

- The Control Room must be designed to accommodate the Rolling Mill Operator including monitors for the video system and the HMI as operator interface.
- The Control Room must be elevated to permit the operator oversee the entire Rolling Mill System operation from the windows and to make any changes to the rolling process.
- Control Room requirements:
  - dimensions: 2,500 mm by 2,500 mm
  - safety rated observation windows
  - illuminance within 1500 lux to 3000 lux on the control desk.

## 4. CONSTRAINTS

### 4.1 Driveway Paving Limits

- 46,000 Kg

### 4.2 Loading Dock Limits

The pinch point for truck unloading directly from their box or flat bed is the inner door and dock leveller:

- Overhead door 2.3m wide x 3.0m high.
- Dock floor is 1.2m below finish floor of the ground floor level.
- Dock leveller 20 Ton capacity with platform 2.1m wide x 2.1m long + drop down lip 2.14m wide x 2.22m Deep. Hydraulic leveller range is  $\pm$  0.3m.
- The door at the top of the ramp is 2.3m wide x 3m high.
- Room G043 sliding door dimensions: 5800 mm (w) x 5690 mm (h)

### 4.3 Floor Loading Limits and Material Handling practices

The information will be discussed at the mandatory site visit. During building integration meeting the successful contractor will discuss the equipment delivery with the owner's building engineers.

#### 4.4 In-House Crane Limit

- G043/High Bay-10Tons

### 5. MEETINGS

All coordination meetings shall be managed through CanmetMATERIALS's project authority.

These meetings will be held with all parties:

- Kick-off meeting: this meeting will be held at CanmetMATERIALS facility in Hamilton following contract award.

This meeting will outline the following for each party as it relates to this project:

- All the project parties
- Roles and responsibilities
- Deadlines
- Project Plans
- Risks and issues
- Meeting and communication plans
- Issue resolution procedure
- OHS & E requirements.
- Monthly meetings: this meeting will be held at CanmetMATERIALS facility in Hamilton, the Contractor's site, or by a video conference (as agreed) every month after contract award until completion of the project. This meeting will review:
  - Project work accomplished to date
  - Forecasted project work for the next month
  - Updated forecast to completion
  - New risks and updated risk status complete with risk mitigation and contingency plans
  - Issues to be resolved
  - Requests for assistance from the management teams
- Building integration design review: shortly after the kick-off meeting the Building integration design review meetings will be held at CanmetMATERIALS facility in Hamilton to discuss in detail the equipment demands on the facility with the Building Owner's Engineers. The Contractor shall provide a complete set of specifications and drawings detailing the equipment building requirements (example: electrical, HVAC, mechanical, structural, etc.) within two months of the project kick-off meeting. The building integration design review meeting will be held within one month after receipt of these specifications and drawings.

### 6. CERTIFICATIONS

The Contractor shall demonstrate that the equipment or product meets the listed and any other appropriate standards and regulations, for the intended use.

#### 6.1 Installation Certification

The Contractor is required to arrange and provide installation certification by the Ontario Electrical Safety Authority (ESA) for any electrical installation work. The Contractor is required to ensure that any hydraulic systems meet the requirements of the Province of Ontario, including TSSA certifications if required.

Plumbing must adhere to the National Plumbing Code.

Team members working on this project shall have the following Ontario certifications, licenses or proof of training, as applicable and required:

- Certified pressure welders
- Certified Steam Fitters
- Certified Plumbers
- Certified Industrial Millwrights, Riggers, Ironworkers and welders
- Certified electricians
- Confined space training and certifications
- WHMIS training and certification
- Crane and Forklift certifications

Necessary local permits must be obtained by the Contractor.

## **6.2 Acceptance Test Requirements**

The acceptance tests shall be in accordance with the Site Acceptance Test Plan specified in Annex B.

## **6.3 Calibration Certification**

The contractor must provide calibration and certification of calibration of the equipment as installed at the Hamilton Facility. Wherever possible, all calibrations are to be provided by an accredited calibration service provider, which is accredited to, ISO/IEC 17025-2005.

## **7. INSTALLATION**

The Contractor must provide on-site installation of the system upon arrival at the CanmetMATERIALS Facility in Hamilton, Ontario. Installation must be carried out by qualified personnel. The Contractor is responsible for unloading the equipment at CanmetMATERIALS's facility.

CanmetMATERIALS will provide the required service drops (electrical, compressed air, water, and cooling circuit water); lockable disconnects, to support the final hook-up of the system.

## **8. COMMISSIONING**

The Contractor must provide on-site commissioning at the CanmetMATERIALS facility in Hamilton, Ontario. All costs associated with the commissioning of the system, including travel and living expenses must be included in the price. The on-site commissioning of the system must be carried out by qualified personnel. The exact date, time and location of the commissioning will be mutually agreed between the Contractor and the Technical Authority stated herein.

### **8.1 Cold Commissioning**

This mode of commissioning is to be carried out prior to Energizing Equipment. The Contractor shall develop a detailed test plan for completing cold commissioning. The items to be completed include the following:  
Contractor:

- Obtain Electrical Certification (Ontario Electrical Safety Authority -- ESA)
- Provide Safety Engineering Compliance/ Deficiency Report
- Write Standard Operating Procedures for Updates or Creation
- Develop Lock-Out Tag-Out (LOTO) Procedure

- Provide Equipment Documentation Updates (as a result of equipment modification & installation)
- Rework to Obtain Compliance

CanmetMATERIALS Staff:

- Equipment Energizing Procedure Commences
- Staged Removal of Lock-Out Tag-Out (LOTO) of Equipment

## 8.2 Warm Commissioning

The Contractor shall develop detailed test plan for completing warm commissioning acceptance.

Warm commissioning shall involve the following:

- Conduct Calibration and Alignment
- Verify Motor Rotations
- Verify all Machine Motions
- Correct any Interference
- Ensure Limit Switches are Properly Set
- Verify Speed and Speed Controls
- Verify Automation
- Have Machine Run up to Speed to Perform all Motions with no Product

Warm Commissioning is assumed to be completed at this stage, afterwards,

- Contractor Signs off on Commissioning of New Equipment

## 8.3 Hot Commissioning

Hot commissioning is conducted in order to achieve the following:

- Run Machine with Product and Assistance of Operator to Verify that Quality Requirements are met
- Rework from Verification Testing
- Hot Commissioning Complete

Installation and Commissioning Complete

At the completion of hot commissioning, the equipment must be "Turned-Over to Operations". As part of the Hot Commissioning we intent to complete the test plan

Note for Contractors: All costs associated with the on-site commissioning must be included in the firm lot price.

## 9. LEGAL REQUIREMENT

The services and procurement activity must meet the regulations, guidelines, and standards as outlined in "Associated Documents". Where there is a conflict between the various regulations, guidelines, and standards, the contractor must comply with the machine specific requirements for that type of machine.

Standards in order of precedence are:

- Canadian-Federal
- Canadian-Provincial
- US/NA
- ISO/EN
- Other

Where they exist, the harmonized corresponding ISO/EN numbered standards are equivalent and may be substituted.

## 10. ASSOCIATED DOCUMENTS

Note: the content of this section is not all inclusive. It is the responsibility of the supplier to ensure that all relevant regulations, guidelines and standards are met as it applies to this scope of work.

### 10.1 Regulations, Guidelines, and Standards

#### *Government of Canada*

- Canada Labour Code Part II: Occupational Health and Safety
- Canada Occupational Health and Safety Regulations
- National Building Code
- National Fire Code
- National Plumbing Code
- Treasury Board of Canada Directives, Guidelines, Policies and Procedures
- Canadian Environmental Protection Act
- Controlled Goods Act (may be applicable)

#### *Province of Ontario*

- Occupational Health and Safety Act
- Ontario's 2012 OH&S Act and Regulations
- Guidelines for Pre-start Health and Safety Reviews, Annex II (Recognized Standards) (Ontario Ministry of Labour, April 2001)
- Ontario Building Code (current edition)
- Technical Standards and Safety Act (including applicable standards referenced within)
- Ontario Fire Code (current edition)
- Ontario Plumbing Code
- Environmental Protection Act
- Ontario Electrical Safety Code 25th edition

#### *Industry Canada*

- ICES-001: Industrial, Scientific and Medical (ISM) Radio Frequency Generators

### 10.2 Safety Standards

#### *CSA*

- Z432: Safeguarding of Machinery
- Z107.58: Noise Emission Declarations for Machinery
- CAN/CSA-Z431: Basic and Safety Principles for Man-Machine Interface, Marking, and Identification
- Z460-05: Control of Hazardous Energy - Lockout and Other Methods

#### *NFPA*

- 79: Electrical Standard for Industrial Equipment

### 10.3 Performance Standards

- ASTM A568: Standard Specification for Steel, Sheet, Carbon, Structural and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled

## **11. OCCUPATIONAL HEALTH & SAFETY AND ENVIRONMENT**

### **11.1 Contractor Health & Safety Compliance Requirements**

- The contractor shall comply with the Province of Ontario's requirements and CanmetMATERIALS Federal OHS&E (Occupational Health, Safety and Environment) policy and procedures.
- CanmetMATERIALS will orient the contractor for CanmetMATERIALS Federal OHS&E policy and procedures, prior to the start of the work.
- The contractor shall put in place its own qualified compliance monitoring process and team.
- A CD containing the CanmetMATERIALS Health and Safety program will be provided at the mandatory site visit.

## **12. TRAINING**

### **12.1 On-Site Training**

On-site (CanmetMATERIALS Facility, Hamilton, Ontario) commissioning and training is to include system operation, hardware maintenance procedures, software usage, safety training, procedure for maintenance, system calibration and trouble shooting of the system for up to a maximum of five (5) users in English for two (2) weeks. All costs associated with the on-site installation, commissioning and training must be included in the firm lot price.

The exact date, time and location of the training will be mutually agreed between the Contractor and the Technical Authority stated herein.

All costs associated with the training must be included in the firm lot price.

## **13. WARRANTY, SERVICE, SUPPORT & UPDATES**

The Contractor must provide for 1-year parts and labour warranty on the entire equipment. Warranty will begin on the day that the equipment is accepted as fully tested and operational to the satisfaction of CanmetMATERIALS.

Purchase of the equipment must include technical support as either; regional technical support; technical phone support; or support via the Internet. Communication must begin within 2 business days of the initial request for support.

The system provided must have spare parts and service support available for a minimum of five (5) years after purchase.

The Contractor must provide all software updates and new releases to the purchaser for a period of two (2) years following acceptance, at no additional cost.

Note: The word "updates" means all enhancements, extensions or other modifications to the software. The word "releases" means enhancements or modifications to the software or new modules or supplementary modules that function in conjunction with the software, that represent the next generation of software, and which the Contractor has decided to make available to its customers usually for an additional charge.

**14. DRAWING REVIEW PRIOR TO FABRICATION OR PURCHASE**

The successful supplier must present designs to the technical authority along with the reasoning for the decisions made, and where appropriate with a discussion of alternates considered. The design must form the starting point for a more sophisticated, rolling system. It is the intention of CANMET to add to this basic mill with future procurements. The technical authority will agree to treat as confidential any information the supplier considers proprietary if it has to be divulged as part of this process.

**15. DOCUMENTATION (Manuals & Equipment Drawings)**

The Contractor is to provide to CanmetMATERIALS, two (2) hard copies and one (1) electronic copy, in MS Word, of the manuals which must include, but not limited to:

- Installation and startup manuals
- Calibration Procedure and certifications
- User Manuals including electrical, hydraulic and pneumatic schematics
- OEM certifications
- Maintenance, Troubleshooting & Parts manual
- Procedure to place the system into a safe and reliable shutdown state
- Emergency procedures

Manuals must be provided to CanmetMATERIALS in English.

The Contractor is to provide to CanmetMATERIALS, electronic copies, in AutoCAD or PDF format, of the system schematics, layouts, and equipment detail drawings.



**ANNEX "B"****ACCEPTANCE TEST PLAN****ROLLING MILL****1. INTRODUCTION**

This document outlines the methods and testing procedures for all acceptance tests for the RESEARCH AND DEVELOPMENT ROLLING MILL during cold, warm and hot commissioning. In order for acceptance testing to be completed successfully, the contractor must perform all tests to successful completion in the presence of the CanmetMATERIALS Inspection Authority. Each test has two possible outcomes: pass or fail. Any failed test is reason for the entire test sequence to be failed.

**2. SIGN-OFF**

The Contractor and CanmetMATERIALS shall both sign off on each requirement that has been met.

The Contractor and CanmetMATERIALS shall develop an agreed upon list of deficiencies and the Contractor shall provide an acceptable corresponding corrective action plan.

**3. SITE ACCEPTANCE TEST (SAT) PLAN**

SAT Plan shall be conducted at the CanmetMATERIALS site in Hamilton. The purpose is to ensure that all mandatory requirements set out in this RFP have been satisfied. In order to clarify the expectations this plan identifies the exact tests which will be performed. This will be done in three phases:

1. During installation and cold commissioning: the appropriate requirements specified in Annex A paras. 3.1 and 3.2 shall be validated.
2. During warm commissioning: the appropriate requirements specified in Annex A 3.1 and 3.2 shall be validated including the procedures specified in the System Testing Plan.
3. During hot commissioning: the appropriate requirements specified in Annex A 3.1 and 3.2 shall be validated following the procedure specified in the Functional Test plan.

**3.1 SYSTEM TESTING PLAN**

| Item | Test Description  | Details | SAT |
|------|---|---------|-----|
| 1.1  | Minimum hot rolling speed at maximum roll gap on AISI 1040 Steel (or equivalent hot strength):<br><br>On a 275 mm thick x 350 mm wide x 300 mm length sample validate 100 mm/s $\pm$ 5% hot rolling speed.<br><br>The reduction must be minimum 5%. |         |     |
| 1.2  | Maximum hot rolling speed on AISI 1040 Steel (or equivalent hot strength) at 850 °C - 950 °C :  |         |     |

|      |   |  |  |
|------|---|--|--|
|      | On a 5mm thick x 150 mm wide x 150mm length sample validate 1500 mm/s $\pm$ 5% hot rolling speed.<br><br>The reduction must be minimum 5%.  |  |  |
| 1.3  | Validate roll changing equipment performing a 4 high to 2 high change-over or vice versa.   |  |  |
| 1.4  | Validate the Roller Table guides adjustment and alignment using a full dimensions hot plate during the oscillating operation.<br><br>Demonstrate the exit rolls effectiveness to minimize curl.   |  |  |
| 1.5  | Demonstrate the Product Manipulators operation moving an 80 kg, 1270 mm length plate from the roller table to the furnace.  |  |  |
| 1.6  | Demonstrate the tension reels operation at room temperature following the schedule below:<br><br><i>Schedule 1:</i> <ul style="list-style-type: none"> <li>Load and open a coil from a third party supplier. The strip will be AISI 1040 Steel (or equivalent) or Aluminum 5xxx (or equivalent), width ~ 300mm and ~ 2mm thickness.</li> <li>Recoil the strip and conduct winding and unwinding under a tension up to 50 kN.</li> <li>Unload the recoiled strip.</li> </ul> <i>Schedule 2:</i> <ul style="list-style-type: none"> <li>Make a coil from a flat strip with 6000 mm length, ~ 2mm thickness and ~ 300 mm wide. The material will be AISI 1040 Steel (or equivalent) or Aluminum 5xxx (or equivalent).</li> <li>Conduct a winding and unwinding under a tension up to 50 kN.</li> <li>Unload the final coil.</li> </ul> |  |  |
| 1.7  | Verify shear operation shearing a 20 mm thickness of steel strip full width at approximately 800 °C.  |  |  |
| 1.8  | Verify the Cold Rolling Lubrication system considering the capacity to adjust the amount of oil to be applied at different speeds and strip dimensions to avoid oil drips and uniform distribution.   |  |  |
| 1.9  | Start Up and Shut Down procedure validation   |  |  |
| 1.10 | Emergency Stop sequence validation  |  |  |
| 1.11 | Verify leak free equipment under operation conditions   |  |  |
| 1.12 | Demonstrate the operation of all sensors and verify the data output accuracy by on site calibration   |  |  |
| 1.13 | Validate catwalk, rolling mill structural support , control room Engineering Drawings   |  |  |
| 1.14 | Simulate loss of cooling water, power, and compressed air.<br><br>Ensure no systems restart after failure if required.  |  |  |
| 1.15 | Demonstrate fumes exhaust operation capability measuring the quantity of airborne mineral oil not exceeding 5 mg/m <sup>3</sup> at any time during the Cold Strip Lubrication system operation.   |  |  |

**3.2. FUNCTIONAL TEST PLAN**

| Item | Test Description  | Details | SAT |
|------|---|---------|-----|
| 2.1  | <p><i>Physical Hot Rolling:</i></p> <p>Starting slab: 275 - 250 mm thick x 350 mm wide x 300 mm length AISI 1040 (or equivalent hot strength).</p> <p>Final hot band: 2mm thick.</p> <p>The software must create a rolling schedule that provides for each pass at least:</p> <ul style="list-style-type: none"> <li>• Entry and exit thickness</li> <li>• Temperature</li> <li>• Rolling Speed</li> <li>• Rolling Load</li> <li>• Torque</li> <li>• Sheer option</li> </ul> <p>The Mill must execute multi-pass operation from 275-250 mm entry thickness to 2mm exit thickness according to the designed schedule.</p> <p>Practiced rolling temperature must include 1200 to 800 °C.</p> <p>Reduction per pass must include 10 - 25%.</p> <p>Rolling speed must include 0.1 to 0.5 m/s.</p> <p>Shear must be operated at maximum thickness of 20 mm.</p>  |         |     |
| 2.2  | <p><i>Physical Cold Rolling:</i></p> <p>Starting Strip: 2-3 mm thick x 300 mm wide x 6000 mm length AISI 1020 (or equivalent cold strength).</p> <p>Final cold rolled sheet: 0.5 mm thick</p> <p>The software must create a rolling schedule that provides for each pass at least: entry and exit thickness, rolling speed, required entry and exit tension, estimated rolling load and estimated torque.</p> <p>The mill must execute multi-pass cold rolling operation under tension from 2-3mm entry thickness to 0.5 mm exit thickness according to the designed schedule. Reduction per pass must include 5-25%. Rolling speed must include 0.1 to 0.8 m/s. Applied entry and exit tension must include up to 50kN.</p> <p>Flatness, gauge thickness, surface finish and other features of the final cold rolled sheet must comply with requirements that are specified in Annex A, 2.3.2.5.</p> |         |     |

**ANNEX "C"****PRICING SCHEDULE**

All prices must be firm in Canadian dollars, Delivered Duty Paid (Hamilton, Ontario), Goods and Services Tax or the Harmonized Sales Tax extra.

**1. EQUIPMENT**

- 1.1** Firm Lot Price for the approval of engineering design and delivery of the drawings as per SOW, paragraph 14.

**FIRM LOT PRICE** \$ \_\_\_\_\_

- 1.2** Firm Lot Price for Electrical Motors and Gear Boxes per SOW, para. 2.

**FIRM LOT PRICE** \$ \_\_\_\_\_

- 1.3** Firm Lot Price for fabrication and delivery of the Mill Stand as per SOW, para. 2.

**FIRM LOT PRICE** \$ \_\_\_\_\_

- 1.4** Firm Lot Price for supply and delivery of the Rolls as per SOW, para. 2.

**FIRM LOT PRICE** \$ \_\_\_\_\_

- 1.5** Firm Lot Price for supply and delivery of the Auxiliary support equipment, Roller Tables, product manipulators and entry/delivery payoff/tension reels system as per SOW, para. 2.

**FIRM LOT PRICE** \$ \_\_\_\_\_

- 1.6** Firm Lot Price for supply and delivery of the PLC, Computers and Controls as per SOW, para. 2.

**FIRM LOT PRICE** \$ \_\_\_\_\_

- 1.7** Firm Lot Price for supply and delivery of the mill structure support, catwalk as per SOW, para. 2.

**FIRM LOT PRICE** \$ \_\_\_\_\_

**2. INSTALLATION, COMMISSIONING, TESTING COSTS & ON-SITE TRAINING**

The prices identified must include all costs including travel and living expenses.

- 2.1** Firm Lot Price for the installation of the equipment as per SOW, paragraph 7.

**FIRM LOT PRICE** \$ \_\_\_\_\_

- 2.2** Firm Lot Price for the commissioning and testing of the equipment as per SOW, paragraph 8.

**FIRM LOT PRICE** \$ \_\_\_\_\_

- 2.3** Firm Price per Diem for the on-site training, including travel and living expenses as per SOW, paragraph 12. For the purpose of this requirement, the duration of time for these activities will be estimated at 2 weeks.

Firm Price per Diem \$ \_\_\_\_\_ **FIRM PRICE (2 weeks estimate)** \$ \_\_\_\_\_

Note: The contract value will be amended to reflect actual time spent for on-site training.

**2.4 INSTALLATION AND TESTING OF EQUIPMENT (FIRM HOURLY RATES)**

The following outlined labour rates will apply for design changes.

| Labour Categories | Hourly Rate<br>During | Hourly Rate<br>Outside |
|-------------------|-----------------------|------------------------|
| _____             | \$ _____              | \$ _____               |
| _____             | \$ _____              | \$ _____               |
| _____             | \$ _____              | \$ _____               |
| _____             | \$ _____              | \$ _____               |

The bidder must submit a firm hourly rate for installation and testing during and outside normal working hours for each labour category required.

**3. DOCUMENTATION**

- 3.1** Firm lot price for As-Built drawings as per SOW, paragraph 14.

**FIRM LOT PRICE** \$ \_\_\_\_\_

- 3.2** Firm lot price for all manual documentation packages as per SOW, paragraph 15.

**FIRM LOT PRICE** \$ \_\_\_\_\_

**4. OPTIONAL EQUIPMENT**

The price identified for all optional equipment must include travel and living expenses.

**4.1 Option 1**

The bidder must provide firm lot price for the Accelerated Cooling Line as per SOW, paragraph 3.1.

**FIRM LOT PRICE** \$ \_\_\_\_\_

**4.2 Option 2**

The bidder must provide firm lot price for the Control Room as per SOW, paragraph 3.2.

**FIRM LOT PRICE** \$ \_\_\_\_\_

**4.3 Option 3**

The bidder must provide firm lot price for all documentation and training in the French language only as per SOW, paragraph 3.

**FIRM LOT PRICE** \$ \_\_\_\_\_

**4.4 Option 4**

The bidder must provide firm lot price for Spare parts list as per SOW, paragraph 3.

**FIRM LOT PRICE** \$ \_\_\_\_\_

**4.5 Option 5**

The bidder must provide firm lot price for Consumable parts list as per SOW, paragraph 3.

**FIRM LOT PRICE** \$ \_\_\_\_\_

**4.6 Option 6**

The bidder must provide firm lot price for Preventative Maintenance Service as per SOW, paragraph 3. The bidder must provide a detailed description of the scope of work.

**FIRM LOT PRICE** \$ \_\_\_\_\_

**4.7 Option 7**

The bidder must provide firm lot price for an extension of the Standard Warranty by an additional 2 year period as per SOW, paragraph 3.

**FIRM LOT PRICE** \$ \_\_\_\_\_

**4.8 Option 8**

The bidder must provide firm lot price for Calibration services in accordance with the calibration plan over the first 2 years following the installation as per SOW, paragraph 3.

**FIRM LOT PRICE** \$ \_\_\_\_\_

**TOTAL FIRM LOT PRICE** \$ \_\_\_\_\_

**ANNEX "D"****COMMERCIAL GENERAL LIABILITY INSURANCE**

1. The Contractor must obtain Commercial General Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$2,000,000 per accident or occurrence and in the annual aggregate.
2. The Commercial General Liability policy must include the following:
  - (a) Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.
  - (b) Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
  - (c) Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.
  - (d) Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.
  - (e) Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
  - (f) Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
  - (g) Employees and, if applicable, Volunteers must be included as Additional Insured.
  - (h) Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program)
  - (i) Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.
  - (j) Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
  - (k) If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
  - (l) CanmetMATERIALS' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.
  - (m) Non-Owned Automobile Liability - Coverage for suits against the Contractor resulting from the use of hired or non-owned vehicles.

- 
- (n) Litigation Rights: Pursuant to subsection 5(d) of the Department of Justice Act, S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

For the province of Quebec, send to:

Director Business Law Directorate,  
Quebec Regional Office (Ottawa),  
Department of Justice,  
284 Wellington Street, Room SAT-6042,  
Ottawa, Ontario, K1A 0H8

For other provinces and territories, send to:

Senior General Counsel,  
Civil Litigation Section,  
Department of Justice  
234 Wellington Street, East Tower  
Ottawa, Ontario K1A 0H8

A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.