

ADVANCE CONTRACT AWARD NOTICE (ACAN)

1. Advance Contract Award Notice (ACAN)

An ACAN is a public notice indicating to the supplier community that a department or agency intends to award a contract for goods, services or construction to a pre-identified supplier, thereby allowing other suppliers to signal their interest in bidding, by submitting a statement of capabilities. If no supplier submits a statement of capabilities that meets the requirements set out in the ACAN, on or before the closing date stated in the ACAN, the contracting officer may then proceed with the award to the pre-identified supplier.

2. Definition of Requirements

A existing engineering tool, in form of a finite element model (FEM) that predicts the mechanical properties of a steel pipeline fitting based on heat transfer analysis and phase transformation calculations has been coded by McMaster University. The code is built based on prior plant trials. It serves as an engineering tool that can predict if a given part with a specified chemistry can be heat treated within the requirements of CSA standard Z245.11-17. This program was built based upon McMaster University's propriety thermal model. The new purchase entails improvement and transfer of an existing custom-made finite element code to Natural Resources Canada, which is not available commercially elsewhere. Natural Resources Canada has the right to utilize the code for research purposes and disseminate the package to its clients.

The department of Natural Resources Canada (NRCAN) has the following requirements:

1. The current FEM code is to be restructured. This includes rearranging the code into a modular format (shaders) with defined input and output parameters. A user interface that can change the boundary conditions to account for variations in thermal cycles and geometries is also to be added.
2. The code must be installed on NRCAN (at CanmetMATERIALS branch: CMAT) computers and suitable training must be provided to CMAT employees. Training is to ensure that CMAT employees can use the code to predict for different part geometries and thermal cycles. Training and user interface should prepare a user (with no programming background) to use the code effectively.
3. Training must also prepare CMAT employees to edit and modify the microstructure and strength modules of the code.
4. The current model needs to be optimized by including experimental CCT and tempering data obtained on an ongoing basis for new steel chemistries. Training must also be given to CMAT employees to ensure that they can carry out further optimization of this kind in the future.

5. A final report and user manual must be provided to the CMAT team explaining use of the FEM code and how to edit the microstructure and strength modules in the future
6. The existing platform might be further extended (as optional follow up work) to include pipeline flanges and heavy gauge forgings.

3. Criteria for Assessment of the Statement of Capabilities

Any interested supplier must demonstrate by way of a statement of capabilities that it has following experiences, qualifications, and knowledge:

- In depth knowledge (at Ph.D. level) of heat transfer, finite element modelling, steel metallurgy, thermodynamic and kinetic modelling of phase transformations in steels, numerical optimization, coding.
- A Ph.D from an accredited university in the field of materials engineering and science
- Experience (at least two years of practical experience) programming finite element models based on physical concepts combining knowledge from the literature with experimentally obtained data.
- Experience (at least two years of practical experience) in FE modelling of heat transfer and phase transformations is necessary.
- Experience (at least two years of practical experience) with the physical metallurgy of CSA 245.11-17 fittings is also an asset.
- Solid evidences of experiences (e.g. technical reports, published journal articles, patents, commercialized software) in conducting the aforementioned activities within the last two-years.

Any interested supplier must demonstrate by way of a statement of capabilities that its product (the engineering predictive tool) meets the following requirements:

- The final software must be able to predict whether a part with given geometry and steel chemistry can be heat treated to meet the requirements of CSA Z245.11-17. The software is to be based on physical concepts from the literature as well as experimentally obtained CCT and tempering data.
- Training must be provided to CMAT employees such that low level users can use the basic software and high level users can easily modify it.
- The code must be installed on CMAT computers in proper working order. The code must also be in a modular form that makes editing possible in the future. Future editing includes but is not limited to further optimization of the code with newly obtained CCT and tempering data, and repurposing of the code for different thermal and steel microstructure evolution simulations.
- A manual is to be provided describing the use and effective editing of the code.

4. Trade Agreements:

Not Applicable

5. Set-aside under the Procurement Strategy for Aboriginal Business:

Not Applicable

6. Comprehensive Land Claims Agreement(s)

Not applicable.

7. Justification for the Pre-Identified Supplier

We intend to deal directly with the supplier mentioned in section 13 below as it is the only known supplier that meets the mandatory criteria set out in section 3 above as well as satisfy the defined requirements in paragraph 2.

Should Canada receive a statement of capabilities from a supplier that contains sufficient information to indicate that it meets the requirements set forth in this ACAN, a competitive process will be triggered with a technical and financial evaluation methodology of the bids proposed by the potential bidders

8. Exception to the Government Contracts Regulations

The following exception(s) to the Government Contracts Regulations is (are) invoked for this procurement under subsection: 6(d) – “only one person is capable of performing the work.

The identified provider, **McMaster University, Department of Materials Science and Engineering**, is the only one able to meet all of the criteria identified in paragraph 3 above.

9. Exclusions and/or Limited Tendering Reasons

Not Applicable

10. Ownership of Intellectual Property

Ownership of any Foreground Intellectual Property arising out of the proposed contract will vest in the Contractor.

11. Contract Period

The contract period will be from December 15, 2017 to March 31, 2018.

Optional Service, if required

The contract period may be from April 1, 2018 to March 31, 2019.

12. Estimated Cost

The estimated maximum value of the contract is \$35,000.00 CAD inclusive.

Optional Service, if required

The estimated maximum value of the contract is 30,000.00 CAD inclusive

13. Name and Address of the Proposed Contractor

Department of Materials Science and Engineering
McMaster University
1280 Main Street West
JHE 357
Hamilton, Ontario, Canada
L8S 4L7

14. Suppliers' right to submit a statement of capabilities

Suppliers who consider themselves fully qualified and available to provide the services/goods described herein, may submit a Statement of Capabilities in writing, preferably by e-mail, to the contact person identified in this Notice on or before the closing date and time of this Notice. The Statement of Capabilities must clearly demonstrate how the supplier meets the advertised requirements.

15. Closing Date

The closing date for a submission of a Statement of Capabilities is December 6, 2017.

16. Contract Authority

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