

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Public Works and Government Services Canada
Telus Plaza North/Plaza Telus Nord
10025 Jasper Ave./10025 ave. Jaspe
5th floor/5e étage
Edmonton
Alberta
T5J 1S6
Bid Fax: (780) 497-3510

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

Title - Sujet LMS Virtual Lab Motion Model	
Solicitation No. - N° de l'invitation W7702-135604/A	Date 2013-01-22
Client Reference No. - N° de référence du client DRDC	
GETS Reference No. - N° de référence de SEAG PW-\$EDM-002-9700	
File No. - N° de dossier EDM-2-35350 (002)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2013-02-07	Time Zone Fuseau horaire Mountain Standard Time MST
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Scott, Jasmine	Buyer Id - Id de l'acheteur edm002
Telephone No. - N° de téléphone (780) 497-3578 ()	FAX No. - N° de FAX (780) 497-3510
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF NATIONAL DEFENCE Defence R&D Canada Suffield Bldg 560 Receiving Ralston Alberta T0J 2N0 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

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

Issuing Office - Bureau de distribution

Public Works and Government Services Canada
Telus Plaza North/Plaza Telus Nord
10025 Jasper Ave./10025 ave Jasper
5th floor/5e étage
Edmonton
Alberta
T5J 1S6

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PART 1 - GENERAL INFORMATION

1. Introduction

The bid solicitation is divided into six parts and annexes, as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided;
- Part 6 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Statement of Work, the Basis of Payment, Disclosures Certification, DND 626, Task Authorization Form, Task Authorization Usage Report and the Mandatory Criteria, Evaluation Criteria and Selection Method.

2. Summary

Defence Research and Development Canada (DRDC) - Suffield, Medicine Hat, Alberta has a requirement to refine the Micro Hydraulic Toolkit (MHT) model, created in LMS's Virtual.Lab Motion 8B-SL1, to be identical to the actual MHT robot on an "as and when" requested Task Authorization contract, all in accordance with the Statement of Work, Annex "A".

The Contract period is from date of award to November 1, 2014 inclusive.

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.

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 (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-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 2003 (2012-11-19) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

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.

3. Enquiries - Bid Solicitation

All enquiries must be submitted in writing 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 "" 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 Alberta.

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.

4. Basis for Canada's Ownership of Intellectual Property

Defence Research and Development Canada (DRDC) has determined that any intellectual property arising from the performance of the Work under the Contract will vest in Canada.

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

Section I: Technical Bid (1 hard copies)
 Section II: Management Bid (1 hard copies)
 Section III: Financial Bid (1 hard copy)
 Section IV: Certifications (1 hard copy)

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

Canada requests that bidders 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.

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 (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should :

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and 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

In their technical bid, bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability and describe their approach in a thorough, concise and clear manner for carrying out the work.

The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

Bids will address the Statement of Work, Annex "A", as well as the First Task Authorization in Appendix 1 to Annex "F". Information provided in response to both of these documents will be evaluated based on the criteria identified in Annex "F" - Mandatory Requirements, Evaluation Criteria and Selection Method.

Note: Due to the nature of this work, it is not possible to specify the contents or number of Task Authorizations. However, for the purposes of evaluating the bids submitted, the bidder is required to prepare and include in the bid a summary for the First Task Authorization as specified in Appendix 1 to Annex "F". Each Sample Task Authorization Request is to be treated as a new work package and the procedures required are as they would occur during the course of the Contract. Any specifications which cannot be met by the Bidder must be stated in the proposal.

Section II: Management Bid

In their management bid, bidders must describe their capability and experience, the project management team and provide client contact(s).

Section III: Financial Bid

- 1.1 Bidders must submit their financial bid in accordance with the following:
 - 1.1.1 Part One - Annex "B", Basis of Payment, pertaining to the Contract. This will include firm rates that will be in effect for the period of the contract.
 - 1.1.2 Part Two - Annex "F", Appendix 1, First Task Authorization, Basis of Payment. This will be used for evaluation purposes. The rates offered for the First Task Authorization must be the same as those offered for Work under the Contract in Annex "B".

1.2 Exchange Rate Fluctuation

C3011T (2010-01-11), Exchange Rate Fluctuation

Section IV: Certifications

Bidders must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical, management and financial, evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

1.1 Technical & Management Evaluation

Mandatory and point rated technical criteria are included in Annex "F".

1.2 Financial Evaluation

Financial evaluation will be based on the total Limitation of Expenditure quoted for the First Task Authorization which will be used as the total estimated price in the calculations described in the BASIS OF SELECTION, Annex "F".

SACC Manual Clause A0220T (2007-05-25), Evaluation of Price

2. Basis of Selection

Basis of selection is included in Annex "F".

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and related documentation to be awarded a contract. Canada will declare a bid non-responsive if the required certifications and related documentation 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 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, to provide the related documentation or to comply with the request of the Contracting Authority for additional information will also render the bid non-responsive.

1. Mandatory - Certifications Required Precedent to Contract Award

1.1 Code of Conduct and Certifications - Related documentation

- 1.1.1** By submitting a bid, the Bidder certifies, for himself and his affiliates, to be in compliance with the Code of Conduct and Certifications clause of the Standard instructions. The related documentation hereinafter mentioned will help Canada in confirming that the certifications are true. By submitting a bid, the Bidder certifies that it is aware, and that its affiliates are aware, that Canada may request additional information, certifications, consent forms and other evidentiary elements proving identity or eligibility. Canada may also verify the information provided by the Bidder, including the information relating to the acts or convictions specified herein, through independent research, use of any government resources or by contacting third parties. Canada will declare non-responsive any bid in respect of which the information requested is missing or inaccurate, or in respect of which the information contained in the certifications is found to be untrue, in any respect, by Canada. The Bidder and any of the Bidder's affiliates, will also be required to remain free and clear of any acts or convictions specified herein during the period of any contract arising from this bid solicitation.

Bidders who are incorporated, including those bidding as a joint venture, must provide with their bid or promptly thereafter a complete list of names of all individuals who are currently directors of the Bidder. Bidders bidding as sole proprietorship, including those bidding as a joint venture, must provide the name of the owner with their bid or promptly thereafter. Bidders bidding as societies, firms, partnerships or associations of persons do not need to provide lists of names. If the required names have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply will render the bid non-responsive. Providing the required names is a mandatory requirement for contract award.

Canada may, at any time, request that a Bidder provide properly completed and Signed Consent Forms (Consent to a Criminal Record Verification form- PWGSC-TPSGC 229) (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html>) for any or all individuals aforementioned within the time specified. Failure to provide such Consent Forms within the time period provided will result in the bid being declared non-responsive.

2. Additional 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 and 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.

2.1 Federal Contractors Program - Certification - over \$25,000 and below \$200,000

Suppliers who are subject to the Federal Contractors Program (FCP) and have been declared ineligible contractors by Human Resources and Skills Development Canada (HRSDC) are no longer eligible to receive federal 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.

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;
- d. () has not been declared an ineligible contractor by HRSDC, and has a valid certificate number as follows: _____ .

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

[Http://www.hrsdc.gc.ca/eng/labour/equality/fcp/index.shtml](http://www.hrsdc.gc.ca/eng/labour/equality/fcp/index.shtml)

2.2 Former Public Servant - Competitive Requirements

Contracts with former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts with FPS, bidders must provide the information required below.

Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the *Financial Administration Act*, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or

d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means, a pension or annual allowance paid under the Public Service Superannuation Act (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the Supplementary Retirement Benefits Act, R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the Canadian Forces Superannuation Act, R.S., 1985, c.C-17, the Defence Services Pension Continuation Act, 1970, c.D-3, the Royal Canadian Mounted Police Pension Continuation Act, 1970, c.R-10, and the Royal Canadian Mounted Police Superannuation Act, R.S., 1985, c.R-11, the Members of Parliament Retiring Allowances Act, R.S., 1985, c.M-5, and that portion of pension payable to the Canada Pension Plan Act, R.S., 1985, c.C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes ()** **No ()**

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with **Contracting Policy Notice: 2012-2** and the **Guidelines on the Proactive Disclosure of Contracts**.

Work Force Reduction Program

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of a work force reduction program? **Yes ()** **No ()**

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force reduction program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including the Goods and Services Tax or Harmonized Sales Tax.

2.3 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.

2.4 Education and Experience

2.4.1 SACC Manual clause A3010T (2010-08-16), Education and Experience

PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

1. Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex "A" and the Contractor's technical bid and management portion of the Contractor's bid entitled _____, dated _____.

1.2 Task Authorization

The Work or a portion of the Work to be performed under the Contract will be on an "as and when requested basis" using a Task Authorization (TA). The Work described in the TA must be in accordance with the scope of the Contract.

1.2.1 Task Authorization Process

1. The Technical Authority will provide the Contractor with a description of the task using "DND 626, Task Authorization Form".
2. The Task Authorization (TA) will contain the details of the activities to be performed, a description of the deliverables, and a schedule indicating completion dates for the major activities or submission dates for the deliverables. The TA will also include the applicable basis (bases) and methods of payment as specified in the Contract.
3. The Contractor must provide the Technical Authority, within five (5) calendar days of its receipt, the proposed total estimated cost for performing the task and a breakdown of that cost, established in accordance with the Basis of Payment specified in the Contract.
4. The Contractor must not commence work until a TA authorized by the Technical Authority has been received by the Contractor. The Contractor acknowledges that any work performed before a TA has been received will be done at the Contractor's own risk.

1.2.2 Task Authorization Limit

The Technical Authority may authorize individual task authorizations up to a limit of \$50,000.00, Goods and Services Tax or Harmonized Sales Tax included, inclusive of any revisions.

Any task authorization to be issued in excess of that limit must be authorized by the Technical Authority and Contracting Authority before issuance.

1.2.3 Minimum Work Guarantee - All the Work - Task Authorizations

1. In this clause,

"Maximum Contract Value" means the amount specified in the "Limitation of Expenditure" clause set out in the Contract; and

"Minimum Contract Value" means 10%.

2. Canada's obligation under the Contract is to request Work in the amount of the Minimum Contract Value or, at Canada's option, to pay the Contractor at the end of the Contract in accordance with paragraph 3. In consideration of such obligation, the Contractor agrees to stand in readiness throughout the Contract period to perform the Work described in the Contract. Canada's maximum liability for work performed under the Contract must not exceed the Maximum Contract Value, unless an increase is authorized in writing by the Contracting Authority.

3. In the event that Canada does not request work in the amount of the Minimum Contract Value during the period of the Contract, Canada must pay the Contractor the difference between the Minimum Contract Value and the total cost of the Work requested.

4. Canada will have no obligation to the Contractor under this clause if Canada terminates the Contract in whole or in part for default.

1.2.4 Periodic Usage Reports - Contracts with Task Authorizations

The Contractor must compile and maintain records on its provision of services to the federal government under authorized Task Authorizations issued under the Contract.

The Contractor must provide this data in accordance with the reporting requirements detailed below or in Annex "E". If some data is not available, the reason must be indicated. If services are not provided during a given period, the Contractor must still provide a "nil" report.

The data must be submitted on a quarterly basis to the Contracting Authority.

The quarterly periods are defined as follows:

1st quarter: April 1 to June 30;

2nd quarter: July 1 to September 30;

3rd quarter: October 1 to December 31; and

4th quarter: January 1 to March 31.

The data must be submitted to the Contracting Authority no later than fifteen (15) calendar days after the end of the reporting period.

Reporting Requirement- Details

A detailed and current record of all authorized tasks must be kept for each contract with a task authorization process. This record must contain:

For each authorized task:

- i. the authorized task number or task revision number(s);
- ii. a title or a brief description of each authorized task;
- iii. the total estimated cost specified in the authorized Task Authorization (TA) of each task, GST or HST extra;
- iv. the total amount, GST or HST extra, expended to date against each authorized task;
- v. the start and completion date for each authorized task; and
- vi. the active status of each authorized task, as applicable.

For all authorized tasks:

HST

i. the amount (GST or HST extra) specified in the contract (as last amended, as applicable) as Canada's total liability to the contractor for all authorized TAs; and

ii. the total amount, GST or HST extra, expended to date against all authorized TAs.

1.2.5 Task Authorization - Department of National Defence

The administration of the Task Authorization process will be carried out by the Administrative Authority. This process includes monitoring, controlling and reporting on expenditures of the contract with task authorizations to the Contracting Authority.

2. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

2.1 General Conditions

2040 (2012-11-19), General Conditions - Research & Development, apply to and form part of the Contract.

2.2 SACC Manual Clause

K3410C (2008-12-12), Canada to Own Intellectual Property Rights in Foreground Information, apply to and form part of the Contract.

3. Term of Contract

3.1 Period of the Contract

The period of the Contract is from date of contract award to November 1, 2014 inclusive.

4. Authorities

4.1 Contracting Authority

The Contracting Authority for the Contract is:

Jasmine Scott
Supply Specialist
Acquisitions, Western Region
Department of Public Works and Government Services
Telus Plaza North,
10025 Jasper Avenue, 5th Floor
Edmonton, AB T5J 1S6

Telephone: (780) 497-3578

Facsimile: (780) 497-3510

E-mail address: jasmine.scott@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.

4.2 Technical Authority

(To be provided at Contract Award)

The Technical Authority for the Contract is:

Name: _____

Title: _____

Organization: _____

Address: _____

Telephone: ____-____-_____

Facsimile: ____-____-_____

E-mail address: _____

The Technical Authority named above is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical 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.

4.3 Administrative Authority

(To be provided at Contract Award)

The Administrative Authority for the Contract is:

Name: _____

Title: _____

Organization: _____

Address: _____

Telephone: ____-____-_____

Facsimile: ____-____-_____

E-mail address: _____

4.4 Contractor's Representative

(To be filled out by Bidder)

Name: _____

Title: _____

Telephone: ____-____-_____

Facsimile: ____-____-_____

E-mail address: _____

5. Payment

5.1 Limitation of Expenditure - Cumulative Total of all Task Authorizations

5.1.1 Canada's total liability to the Contractor under the Contract for all authorized Task Authorizations (TAs), inclusive of any revisions, must not exceed the sum of \$150,000.00. Customs duties are extra as and the Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

5.1.2 No increase in the total liability of Canada will be authorized or paid to the Contractor unless an increase has been approved, in writing, by the Contracting Authority.

5.1.3 The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:

- (a) when it is 75 percent committed, or
- (b) four (4) months before the contract expiry date, or
- (c) as soon as the Contractor considers that the sum is inadequate for the completion of the

Work required in all authorized TAs, inclusive of any revisions,

whichever comes first.

5.1.4 If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority, a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

5.2 Basis of Payment

1. The Basis of Payment attached hereto as Annex "B" will be used to price any Task Authorization requested under this Contract.

2. Depending on the type of Task Authorization, one of the following will apply:

(a) **For a Firm Price Task Authorization:** In consideration of the Contractor satisfactorily completing all of its obligations under the Task Authorization, the Contractor will be paid the firm price stipulated in the applicable Task Authorization document, calculated in accordance with Annex "B".

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.

(b) **For a Task Authorization subject to a Ceiling Price:** The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work under the Task Authorization, to the ceiling price specified in the applicable Task Authorization document, which will be established based on the rates and other provisions set out in Annex "B".

The ceiling price is subject to downward adjustment so as not to exceed the actual charges and costs reasonably incurred in the performance of the Work and computed in accordance with the Basis of Payment specified in the Task Authorization document.

(c) **For a Task Authorization subject to a Limitation of Expenditure:** The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work under the Task Authorization, in accordance with the Basis of Payment specified in the applicable Task Authorization document, which will be established based on the rates and other provisions set out in Annex "B".

No increase in the total liability of Canada to the Contractor or in the price of the Work resulting from any design changes, modifications or interpretations of the Specifications will be authorized or paid to the Contractor unless such design changes, modifications or interpretations have been approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total

liability being exceeded before obtaining the written approval of the Contracting Authority. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:

- (a) when it is 75 percent committed, or
- (b) four (4) months prior to the Contract expiry date, or
- (c) as soon as the Contractor considers that the funds provided are inadequate for the completion of the Work,

whichever comes first.

If the notification is for inadequate funds, the Contractor will provide to the Contracting Authority a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

5.3 Method of Payment

5.3.1 For Firm Price Task Authorizations

5.3.1.1 Method of Payment - Single Payment

Canada will pay the Contractor upon completion and delivery of the Work in accordance with the payment provisions of the Contract if:

- a) an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b) all such documents have been verified by Canada;
- c) the Work delivered has been accepted by Canada.

5.3.1.2 Method of Payment - Milestone Payments

1. Milestone payments will be made in accordance with the Schedule of Milestones attached to the Task Authorization, provided that:

- (a) an invoice is submitted to Canada in accordance with the instructions specified herein;
- (b) the invoice is approved by Canada; and
- (c) all the Work required for the milestone claimed has been received and accepted by the Technical Authority.

2. The balance of the amount payable will be paid following:

- (a) completion and acceptance of the Work for the Task Authorization;
- (b) the submission of all deliverable items to the Technical Authority; and
- (c) the approval of the final invoice by Canada.

5.3.2 For Task Authorizations Subject to a Limitation of Expenditure or a Ceiling Price

5.3.2.1 Method of Payment - Single Payment

Canada will pay the Contractor upon completion and delivery of the Work in accordance with the payment provisions of the Contract if:

- a) an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b) all such documents have been verified by Canada;
- c) the Work delivered has been accepted by Canada.

5.3.2.2 Method of Payment - Progress Payments

For Task Authorizations with a duration of more than one (1) month, payment will be made, not more frequently than once a month, provided that:

- (i) the Contractor submits an original and two (2) copies of the fully completed form PWGSC-WR01 (Claim for Payment) to the Administrative Authority, identified herein;
- (ii) each claim includes the amount currently claimed, a holdback of ten (10) percent, the total amount of the previous claims, the cumulative total to date, and the goods and services tax (GST) as a separate item; and the GST registration number;
- (iii) each claim includes the Contract Number and Financial Codes as given on Page 1 of the Contract;
- (iv) the Contractor provides two (2) sets of backup documentation (receipts, vouchers, etc.) to support the claim;
- (v) all report/deliverables required for the Task Authorization have been received and accepted by the Technical Authority; and
- (vi) the claim is approved.

For Task Authorizations with a duration of more than one (1) month, the balance of the amount payable (the holdback), will be paid at the completion of the task, provided a claim for holdback is submitted. The holdback should be claimed separately at the end of each fiscal year.

Progress payments will be regarded as interim payments only and the Minister will have the right to conduct interim cost/time verifications or audits and to make adjustments from time to time during the performance of the Work. Any overpayment resulting from such progress payments or otherwise will be refunded promptly to Canada.

5.4 Discretionary Audit

SACC Manual Clause C0705C (2010-01-11), Discretionary Audit

5.5 Time and Contract Price Verification

SACC Manual Clause C0710C (2007-11-30), Time and Contract Price Verification

5.6 T1204 - Direct Request by Customer Department

SACC Manual Clause A9117C (2007-11-30), T1204 - Direct Request by Customer Department

5.7 SACC Manual Clauses

C2000C (2007-11-30), Taxes - Foreign-based Contractor

6. Invoicing Instructions

6.1 For Task Authorizations subject to Milestone Payments and Progress Payments

6.1.1 Invoicing Instructions - Progress Payment Claim

6.1.1.1 The Contractor must submit a claim for progress payment using form PWGSC-WR01 to the Administrative Authority.

Each claim must show:

- (a) all information required on form PWGSC-WR01;
- (b) all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
- (c) expenditures in accordance with the Basis of Payment for the Work performed during the period of the claim;
- (d) holdback of 10 percent;
- (e) total of all previous claims against the Contract and the extension of the totals to date;

Each claim must be supported by:

- (a) a copy of time sheets to support the time claimed;
- (b) two (2) sets of copies of the invoices, receipts, vouchers for all direct expenses, travel and living expenses;
- (c) a copy of the monthly progress report.

6.1.1.2 Goods and Services Tax (GST) or Harmonized Sales Tax (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.

6.1.1.3 The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-WR01, and forward it to the Administrative Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

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

6.2 For Task Authorizations subject to Single Payment

6.2.1 Invoicing Instructions

6.2.1.1 The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

6.2.1.2. Invoices must be distributed as follows:

- A) The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.

7. Certifications

7.1 Compliance

Compliance with the certifications and related documentation 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, provide the related documentation or if 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.

7.2 Disclosures Certification

On completion of the Work, the Contractor must submit to the Technical Authority and to the Contracting Authority a copy of the Disclosures Certification attached as Annex "C" stating that all applicable disclosures were submitted or that there were no disclosures to submit under general conditions 2040.

8. Applicable Laws

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

9. 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) the general conditions 2040 (2012-11-19), General Conditions - Research & Development;
- (c) Annex "A", Statement of Work;
- (d) Annex "B", Basis of Payment;
- (e) Annex "C", Disclosures Certification;
- (f) Annex "D", Task Authorization Form, DND 626;
- (g) Annex "E", Task Authorization Usage Report;
- (h) the signed Task Authorizations (including all of its annexes, if any);
- (i) the Contractor's bid dated _____.

10. Defence Contract

SACC Manual clause A9006C (2012-07-16), Defence Contract

11. Foreign Nationals

SACC Manual clause A2000C (2006-06-16), Foreign Nationals (Canadian Contractor)

OR

SACC Manual clause A2001C (2006-06-16), Foreign Nationals (Foreign Contractor)

12. SACC Manual Clauses

A9062C (2011-05-16), Canadian Forces Site Regulations

B6800C (2007-11-30), List of Non-consumable Equipment and Material

G1005C (2008-05-12), Insurance

ANNEX "A"

STATEMENT OF WORK

1. Title:

LMS Virtual.Lab Motion Model Validation

2. Background:

The Autonomous Intelligent Systems Section (AISS) at Defence R&D Canada – Suffield (DRDC Suffield) is developing Unmanned Ground Vehicles (UGVs) to operate in complex environments. The ability to operate in complex environments has researchers exploring novel mobility platforms and intelligent mobility algorithms to improve the capabilities of existing and future robotic systems. Pursuant to this objective, DRDC Suffield has identified and constructed some robotic vehicles to further the research. Although these robots will rely on perception systems for navigation in rough terrain it is necessary to develop control for stability and performance.

The Micro Hydraulic Toolkit (MHT) vehicle is one of the robots being developed by Defence R&D Canada – Suffield for control algorithm development. The vehicle is a reconfigurable platform with 12 controllable degrees-of-freedom. The vehicle has a main structure that houses the pump, motor, battery, and control electronics. The main structure also houses a rotary actuator that connects to another rotary actuator by means of a structural leg member. The rotary knee actuator connects to a rotary wheel by another structural member. The entire toolkit is designed with 12 degrees-of-freedom, operated by 8 hydraulic actuators. The four hip and four knee actuators are non-continuous rotary hydraulic actuators that are capable of 90 degrees of rotation. The vehicle is intended to be reconfigurable and therefore the structural members connecting hip to knee and knee to wheel are designed to be fastened in 22.5 degree increments. The four electric wheel actuators are capable of continuous rotary motion. This robot is fully functional and shown in the image below.



3. Objective:

The objective of this “as and when” requested Task Authorization contract is to validate the MHT model created in LMS’s Virtual.Lab Motion 8B-SL1 with the actual MHT robot. This overarching contract is intended to put in place the framework for subsequent work packages that will continue to refine the model until the two systems behave identically when given the same input commands.

4. Scope of Work:

To fulfill the aforementioned objective, the contractor will provide engineering services for the refinement of the computer models for the MHT robotic vehicle. The services will include the following:

- two computer station reconfiguration,
- model redesign, possible creation, and model update
- initial model runs and model debugging
- model validation and changes
- post delivery telephone support services
- Static Proprioceptive Algorithm validation
- Dynamic Proprioceptive Algorithm validation
- Stability Algorithm validation on Various Terrain Surfaces
- Turning Radius with Stability Algorithm validation on Various Terrain Surfaces
- Discontinuous Locomotion Algorithm validation

The intent is to have the contractor provide a full spectrum of services from possible redesign of MHT model to the support services to validate the functionality of the model. The delivered model will be used on local computing facilities at DRDC – Suffield. The contractor will review the DRDC computer configuration (to ensure that simulation runs perform the same at both the DRDC and contractors facilities) and provide recommendations as to changes and/or improvements.

The contracted services for model refinement will be provided on a work package basis. The work packages will be developed by the technical authority as the details of the performance of the behaviours becomes available over the next 24 months.

It is expected that the process to validate the models of acceptable fidelity will be based on repeated discussions about the technical details of the MHT. The technical and administrative details (e.g. cost and delivery schedule) of each work package will be negotiated separately. The cost of each individual work package will be based on the rates provided in the Basis of Payment for the Task Authorization Contract.

The scope of this contract is also to include a training/integration element. The contractor must have the ability to provide general training on the use of the VLM product. The goal is to have the results of the first work package delivered to DRDC Suffield as part of a general refinement.

5. Meetings:

A kickoff meeting at DRDC Suffield is required to start the contract and delivery meeting at DRDC Suffield is required at the delivery of each work package.

6. Reports and Deliverables:

The contractor will provide ongoing summary reporting of the progress of the contract.

This will be short email type reports that include the financial details of the contract. The bulk of the reporting will take place in the delivery of the individual work packages. The details of the expected reporting will be included in the work package. Similarly the deliverables of the work package will be detailed in the work package itself.

7. Government Furnished Support/Equipment/Information:

- Electronic copy of the models
- Access to BLDG. 15/77 area
- Access to the MHT UGV
- Access to an existing Motion Capture facility
- Access to LMS/MATLAB
- Access to the video of behaviours

8. Special Considerations:

It is important to note that this contract will be conducted entirely in LMS Virtual Lab.Motion 8B-SL1.

The contractor will be required to be onsite escorted for validation of the new models.

9. Acceptance Criteria:

The work will be monitored regularly in order to adhere to the work plan and to approve any modifications that may be required. Acceptance will be determined following examination, satisfactory completion, and approval of the work package deliverables by the Technical Authority. The acceptance criteria for the individual work packages will be defined in the work package documentation.

10. Security Classification:

All work is unclassified and the contractor will not have access to any classified information. The contractor will be escorted at all times while on site.

11. Estimated Cash Phasing:

- FY 12-13: \$50K GST Extra
- FY 13-14: \$100K GST Extra

12. DRDC-Suffield General Contract Safety & Security Requirements

(1) GENERAL EXPERIMENTAL PROVING GROUNDS (EPG) SAFETY AND ACCESS INFORMATION

In accordance with DRDC Suffield regulations, all Contractor employees and subcontractors participating in Experimental Proving Ground (EPG) activities that are not escorted by DRDC Suffield personnel or the DRDC-authorized Contract principal will attend a general EPG safety briefing lasting approximately one (1) hour at the Field Operations Section (FOS). This briefing will take place annually for long standing Contracts and new or additional Contractor employees or subcontractors will be required to take the briefing before beginning work.

An access permit is required for non-DND vehicles travelling on the EPG. In addition, a two-way radio, compatible with the DRDC Suffield communication system, will be supplied for safety reasons. Other forms/briefings related to safety and security may be required.

(2) WORK-SPECIFIC SAFETY BRIEFING

Contractors employees or subcontractors supporting DRDC Suffield personnel on specific Field Trial Plans (FTP's), Standing Operating Procedures (SOP's), Study Approval Form (SAF), or other procedure will attend work-specific briefings by the DRDC Technical Authority (TA) lasting approximately one (1) hour relating to health, safety, environmental and emergency response procedures. Documentation including FTP's, SOP's, SAF or other procedures, safety standards and EPG regulations will be cited or made available to the Contractor employees or subcontractors on a loan basis for reference, as applicable.

(3) OBSERVANCE OF ON-SITE SAFETY, HEALTH AND ENVIRONMENTAL STANDARDS ON PROTECTION OF PROPERTY

The Contractor, their employees and subcontractors must comply with all DND/DRDC Suffield regulations in force at the worksite, including the observance of all safety, health and environmental standards and those in place to preserve and protect DND property from loss or damage from all causes including fire.

(4) COMPLIANCE

The Contractor is responsible to ensure that all employees and subcontractors that will be working on the site are fully briefed and have completed and signed the Safety Checklist prior to the start of any portion of the on site work. A copy of the signed checklist must be provided by the Contractor to the DRDC Suffield Technical Authority. No payments will be issued until all documentation is in place.

ANNEX "B" BASIS OF PAYMENT

Payment will be made for time expended and other costs reasonably and properly incurred from the date of contract to contract completion in accordance with the following. Prices to remain firm for the full period of the contract, including option years, if exercised.

1. Labour at firm (daily/hourly) rates. One day consists of 7.5 hours. The rates will be prorated for any period of more or less than one day:
 - a) Title, name:
 - b) Title, name:
2. Material and supplies at actual cost without mark-up.
3. Purchased equipment at laid down cost without mark-up.
4. Subcontracting at actual cost incurred without mark-up.
5. Authorized travel and living expenses at actual cost incurred, except for meals and private vehicle mileage, which are not to exceed the rates given in the Treasury Board Travel and Living Guidelines in effect at the time of travel. A copy of the current Travel Directive Policy is available at: http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp
Travel costs are not to include a mark-up.
6. Other direct charges at actual cost incurred without mark-up.
7. Profit at a firm ____% of items.

TOTAL LIMITATION OF EXPENDITURE:

\$150,000.00

With the exception of the firm elements above, the amounts shown in the respective categories of the above Basis of Payment are estimates and it is the intention that changes from item to item will be accepted for billing purposes as the work proceeds, provided that the total cost of the Contract does not exceed \$150,000.00, GST extra.

GOODS AND SERVICES TAX:

The Total Estimated Goods and Services Tax (GST), \$_____, is not included in the amounts above. The GST is to be shown as a completely separate item on each invoice.

F.O.B. Point: Defence Research and Development Canada - Suffield, Ralston, AB

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Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

edm002

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DRDC

File No. - N° du dossier

EDM-2-35350

CCC No./N° CCC - FMS No/ N° VME

ANNEX "C"
DISCLOSURES CERTIFICATION

This document is to be completed and signed by the Contractor at the completion of the subject contract and submitted to the Contracting Officer and the Technical Authority designated below:

Contracting Authority

Jasmine Scott

Supply Specialist

Acquisitions, Western Region

Public Works & Government Services Canada

Telus Plaza North, 5th Floor

10025 Jasper Avenue

Edmonton, AB T5J 1S6

Technical Authority

Defence Research & Development Canada Suffield

Department of National Defence

P.O. Box 4000 Main

Medicine Hat, AB T1A 8K6

CONTRACT TITLE: LMS Virtual.Lab Motion Model Validation

Please tick appropriate box:

- [] We hereby certify that all applicable disclosures were submitted in compliance with General Conditions 2040 - Research and Development.

YOUR ATTENTION IS DRAWN TO THE TERMS AND CONDITIONS, REGARDING IMPLICATIONS ON NON-DISCLOSURE OF any Technical Documentation, Prototypes, Inventions and Technical Information arising during the performance of work pursuant to the above identified contract,

OR

- [] We hereby certify that there are no disclosures to submit under the above-referenced Contract, referred to in General Conditions 2040 - Research and Development.

Signature

Print Name

Title

Contractor Name

Date

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ANNEX "D"
DND 626, TASK AUTHORIZATION FORM

Please refer to the attachment titled "DND 626 Task Authorization Form."

ANNEX "E"

TASK AUTHORIZATION USAGE REPORT

The Contractor must provide quarterly Task Authorization (TA) usage reports . The Contractor agrees that it is their responsibility to implement a system for tracking TAs under this Contract for the purposes of providing usage reports. This is to ensure that the Limitation of Expenditure indicated for "as and when requested" Work under this Contract is not exceeded.

Each Task Authorization Usage Report must include all the completed TAs for goods and services supplied under this Contract.

Task Authorization Usage Report Submission Schedule:

REPORT DUE	WORK PERIOD START DATE	WORK PERIOD END DATE
15 January	01 October	31 December
15 April	01 January	31 March
15 July	01 April	30 June
15 October	01 July	30 September

The Contractor must provide information on each completed TA using the following format:

TA NUMBER	TA DOLLAR VALUE (GST INCLUDED)	CUMULATIVE TA DOLLAR VALUE (GST INCLUDED)	COMMENTS
Total Dollar Value of TAs for this Period:			
Accumulated TAs to Date (Cumulative Dollar Value + Period Dollar Value):			

[] Check this box if you are submitting a NIL **REPORT** (We have not done any business with Canada under this Contract, for this period).

SEND TO:

wst-pa-edm@pwgsc.gc.ca Or Facsimile: (780) 497-3510

ANNEX "F"
MANDATORY CRITERIA, EVALUATION CRITERIA AND SELECTION METHOD

I. MANDATORY CRITERIA

Mandatory Criteria at Solicitation Closing

Failure to meet any of the following mandatory requirements at solicitation closing will render your submission non-compliant and given no further consideration.

I. MANDATORY REQUIREMENTS
1. Experience: The company must have experience creating LMS models of unmanned ground research vehicles.
2. Experience: The Senior Technical Manager/Developer must have experience creating LMS models of unmanned ground research vehicles.
3. Experience: The Senior Technical Manager/Developer must have experience with 8B-SL1.

II. EVALUATION CRITERIA

POINT RATED CRITERIA

Each Technical Bid which meets all the Mandatory Criteria specified above, will be evaluated and scored in accordance with the following evaluation criteria:

POINT RATED REQUIREMENTS: (Rating: 4=excellent, 3=very good, 2=average, 1=poor, 0=nothing)			
	WEIGHT	RATING	SCORE
A. STUDY STRATEGY			
1. Demonstrated understanding of scope and importance of study and the Statement of work as set out in RFP.	5		
2. Breakdown of project into logical tasks; planning and detail of tasks; detailed schedule and timetable; realistic estimation of the time required to complete the work.	10		
3. Methods of handling potential problems during the project.	5		
MAXIMUM POINTS AVAILABLE			80
MINIMUM POINTS ACCEPTABLE			56
POINTS AWARDED			
B. TRAINING & EXPERIENCE			
1. Demonstrate they have created advanced LMS models of unmanned ground research vehicles.	10		
2. Experience of the Senior Technical Manager/Developer in advanced LMS models of unmanned ground research vehicles.	10		
3. Experience with MATLAB/Simulink link into LMS	5		
4. Adequacy and availability of personnel to carry out the project	5		

5. Experience with the MHT hybrid legged-wheeled robot LMS model	10		
MAXIMUM POINTS AVAILABLE			160
MINIMUM POINTS ACCEPTABLE			112
POINTS AWARDED			
C. PROJECT ORGANIZATION			
1. Allocation of manpower for efficient use of personnel	10		
2. Assurance of liaison with the Technical Authority	10		
3. Overall organization of the project	10		
MAXIMUM POINTS AVAILABLE			120
MINIMUM POINTS ACCEPTABLE			84
POINTS AWARDED			

EVALUATION

Information provided in response to the Statement of Work, Annex "A" and the First Task Authorization in Appendix 1 to Annex "E" will be evaluated based on the criteria identified above.

Each proposal must meet all the mandatory requirements set out in the evaluation criteria. Proposals which fail to meet these requirements will be discarded at this stage without further consideration.

Each point rated evaluation criterion has a number allotment (weight) that reflects its importance in proposal submissions. The degree to which the proposal satisfies the requirement of each criterion will be assessed and a "rating" will be assigned ranging from 0 to 4, with 0 meaning the proposal completely fails to satisfy the requirement, and the total allotment meaning the proposal fully meets the outlined criterion. A score will be assessed by multiplying the weight by the rating.

Each proposal must achieve a minimum score of **70%** of the maximum points available in each category. Proposals that fail to achieve this score will be considered technically unacceptable and will be given no further consideration.

For evaluation purposes an example of a typical task that would be authorized against this contract is provided in Appendix "1" to Annex "F". (FIRST TASK AUTHORIZATION REQUEST and PROPOSED BASIS OF PAYMENT). The total Limitation of Expenditure quoted for the First Task Authorization will be used as the total estimated price in the calculations described below at BASIS OF SELECTION.

Rates provided for pricing in Appendix 1 to Annex "F" (for use in the evaluation) must be the same as those proposed in Annex "B" and in your Price Proposal Part One. Failure to do so will cause your proposal to be set aside and will be given no further consideration. Rates quoted must remain firm for the duration of the contract, GST extra.

Maximum Funding for First Task Authorization:

The maximum funding available for the First Task Authorization Request in Appendix 1 to Annex "F" is \$50,000.00 (Goods and Services Tax or Harmonized Sales Tax extra, as appropriate). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.

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BASIS OF SELECTION

Contractor selection will be based on the bidder that submits the highest technically acceptable proposal provided that the estimated total price does not exceed the established budget for the first task in Appendix 1 to Annex "F".

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APPENDIX 1 TO ANNEX "F"

FIRST TASK AUTHORIZATION REQUEST

First Task Authorization Statement of Work

1. Title:

LMS Virtual.Lab Motion Model Validation (Task 1)

2. Background:

The Autonomous Intelligent Systems Section (AISS) at Defence R&D Canada – Suffield (DRDC Suffield) is developing Unmanned Ground Vehicles (UGVs) to operate in complex environments. The ability to operate in complex environments has researchers exploring novel mobility platforms and intelligent mobility algorithms to improve the capabilities of existing and future robotic systems. Pursuant to this objective, DRDC Suffield has identified and constructed some robotic vehicles to further the research. Although these robots will rely on perception systems for navigation in rough terrain it is necessary to develop control for stability and performance.

The Micro Hydraulic Toolkit (MHT) vehicle is one of the robots being developed by Defence R&D Canada – Suffield for control algorithm development. The vehicle is a reconfigurable platform with 12 controllable degrees-of-freedom. The vehicle has a main structure that houses the pump, motor, battery, and control electronics. The main structure also houses a rotary actuator that connects to another rotary actuator by means of a structural leg member. The rotary knee actuator connects to a rotary wheel by another structural member. The entire toolkit is designed with 12 degrees-of-freedom, operated by 8 hydraulic actuators. The four hip and four knee actuators are non-continuous rotary hydraulic actuators that are capable of 90 degrees of rotation. The vehicle is intended to be reconfigurable and therefore the structural members connecting hip to knee and knee to wheel are designed to be fastened in 22.5 degree increments. The four electric wheel actuators are capable of continuous rotary motion. This robot is fully functional and shown in the image below.



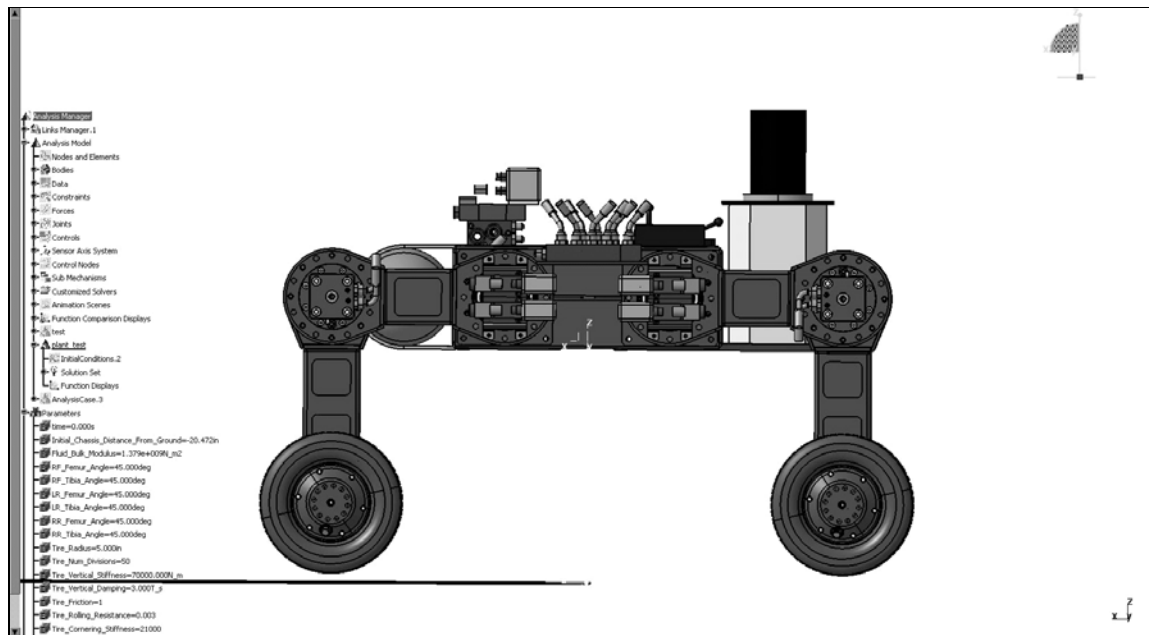
3. Objective:

The objective of this Task is to refine the MHT model, created in LMS's Virtual.Lab Motion 8B-SL1, to be identical to the actual MHT robot.

4. Scope of Work:

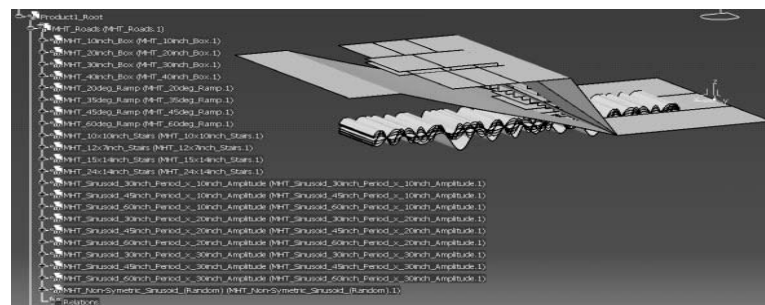
Task #1 Understanding the current state of the MHT in simulation and hardware

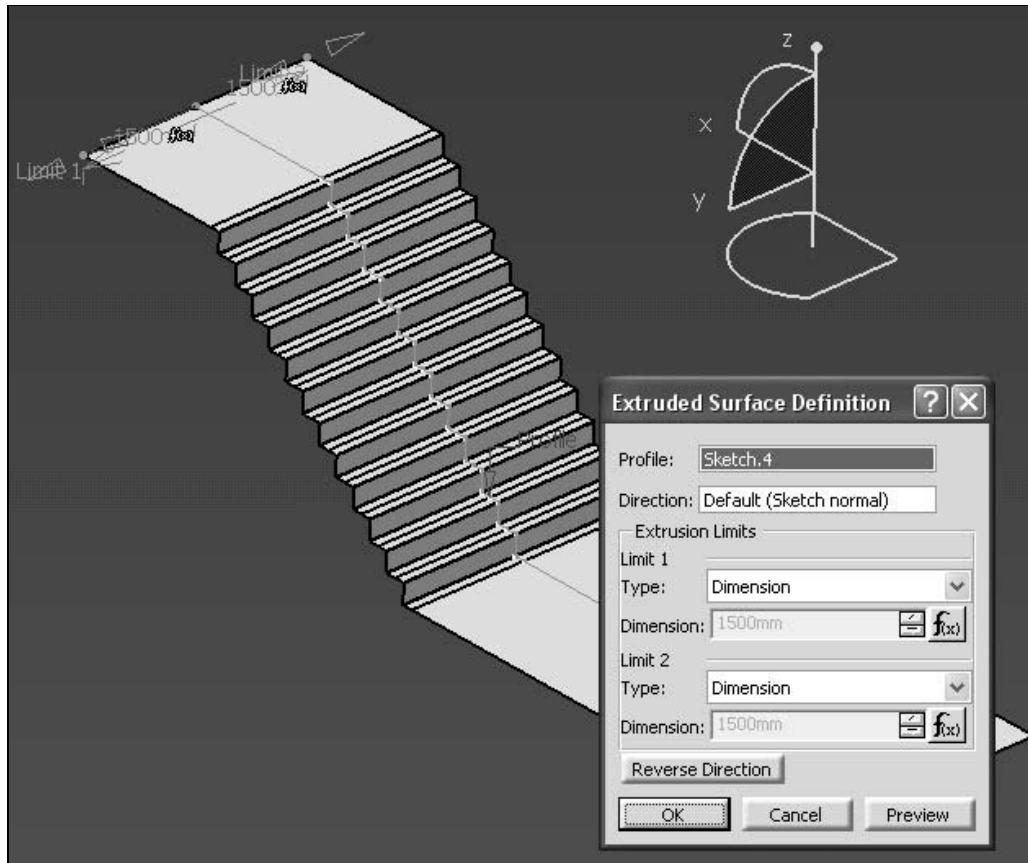
A complete LMS Virtual.Lab Motion (VLM) model, in 8B-SL1, of the MHT robot has been created. This model is an exact replica of the actual robot in size, weight, center of mass, range of motion, etc. The model also includes specific component characteristics of the robot such as tire stiffness and damping values. The control method, feedback sensors, and joint actuation mechanics are also completely modeled. This includes measuring the total charge of the onboard batteries and calculating the energy loss each time the hydraulic pump recharges the accumulator. The model also includes a complete hydraulic circuit complete with operating pressure, flow, and hydraulic fluid characteristics. An image of the modeled robot is shown below:



The LMS VLM software also provides an interface with MATLAB through an S-function in Simulink. The block in the Simulink environment behaves as the interface to the control computer on the robot. This block provides the control signals to each of the actuators and reads the feedback sensors from the robot. The feedback sensors include positions of the actuators, velocity of the wheels, roll, pitch, and yaw values as well as rates and linear accelerations in the x, y, and z directions.

Terrain profiles were also created in the LMS environment to test the control algorithm robustness and try to create realistic obstacles the robot would be expected to traverse in the real world. Four basic terrain patterns were developed including: linear steps, ramps, stairs, and sinusoids. Each of these profiles were created with editable parameters to change the ramp angle, step height, period, amplitude, etc. An asymmetric sinusoidal surface was also created to attempt to model surface roughness. Some of the typical surfaces are shown below:





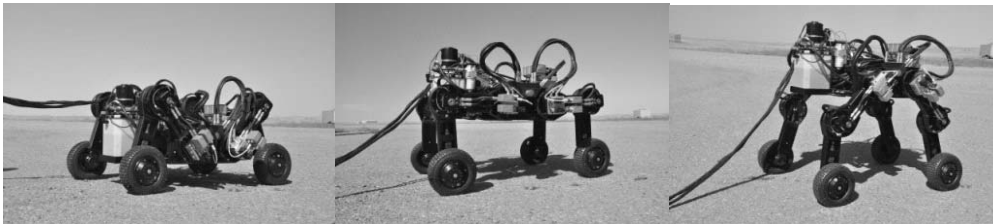
This complete simulated environment allows for complex control code to be written and executed on the model quickly and builds a set of locomotion behaviours. The actual MHT robot is functioning well with the control electronics now integrated from a standalone tethered PC to an onboard embedded controller. A separate piece of software now converts the control code written for the simulation and converts it to code that compiles on the embedded controller.

The result is that a control algorithm created in simulation, that is successful, can be uploaded to the real robot quickly. In addition, a multi motion capture camera system has been installed to track the motion of the real MHT in free space. This system records all joint/limb motions in free space for post trial comparison and a software script is written to perform a batch comparison of the LMS simulated data with the motion capture data to determine the main differences.

Task #2 MHT Control algorithm Validation

The first work package involves validating the model while performing two distinct classes of control algorithms. The first is static proprioceptive algorithms and the second is dynamic proprioceptive algorithms. These various control algorithms will be executed, the real motion recorded with the motion capture system, the simulated motion recorded from LMS, and compare in Matlab. The contractor will examine the differences and make LMS model adjustments. The same control algorithm will be executed again and compared in the same methodology to determine if the two systems are identical. When a high degree of similarity exists between the two systems another control algorithm will be chosen and the process will be repeated. The following are the initial behaviours that will be validated by the contractor.

Static proprioceptive control algorithms are control algorithms that move all active joints in concert to create behaviours using only internal feedback sensors. These sensors are the positions of the actuators, velocity of the wheels, roll, pitch, and yaw values as well as rates and linear accelerations in the x, y, and z directions. For example to move the robot from its lowest position through the midway point to its tallest position, with no forward motion, would be considered a static proprioceptive control behaviour. The sequence of motions is shown in the following figures:



In this task it is expected that a variety of static behaviour algorithms, created in LMS under MATLAB control, will be validated. Some of the intended behaviours are listed below. They are as follows:

- Lowest position to highest position
- Smallest support polygon to largest support polygon
- Max/Min main body pitch
- Max/min main body roll
- Various heights with different wheel separations

Dynamic proprioceptive control algorithms are control algorithms that move all active joints in concert to create behaviours, using only internal feedback sensors, but with forward velocity. It is expected that all of the behaviours created in first task will be used in this task but with a varying forward speeds.

5. Meetings:

A kickoff meeting at DRDC Suffield is required to start the Task and delivery meeting is required at the delivery of each work package.

6. Reports and Deliverables:

- a new VirtualLab model of the MHT vehicle,
- a summary report that identifies all the changes to the parameters, details the components of the physical model, and discusses the initial contractor executed test runs,
- the results (e.g. binary output files, animations, etc) of any test runs executed by the contractor during the model development process,
- the source code for any custom extensions or subroutines written to extend the VLM capabilities (as they pertain to this work package) and any compiled binaries that include these extensions, and
- detailed results of model validation and verification efforts
- onsite integration/debugging of the model once it has been delivered

7. Government Furnished Support/Equipment/Information:

- Electronic copy of the models
- Access to BLDG. 15/77 area

- Access to the MHT UGV
- Access to an existing Motion Capture facility
- Access to LMS/MATLAB
- Access to the video of behaviours

8. Special Considerations:

It is important to note that this contract will be conducted entirely in LMS Virtual Lab.Motion 8B-SL1.

The contractor will be required to be onsite escorted for validation of the new models.

9. Acceptance Criteria:

The acceptance criteria for this task will be the successful integration of a new model into our current computer configuration and having the model and robot behaving identically.

10. Security Classification:

All work is unclassified and the contractor will not have access to any classified information.

11. Duration of First Task:

The period of the first task will be from date of Task Authorization issuance by March 31, 2013.

12. Estimated Expenditure:

The First Task Authorization Request will be a maximum of \$50,000.00, GST extra over the course of the first task.

PROPOSED BASIS OF PAYMENT FOR FIRST TASK AUTHORIZATION

Payment will be made for time expended and other costs reasonably and properly incurred from the date of Task Authorization initiation to its completion in accordance with the following:

1. Labour at firm daily rates. One day consists of 7.5 hours. The rates will be prorated for any period of more or less than one day.

Rates provided in this First Task Authorization must be firm and the same as the rates provided in Part One of the Financial Bid, Annex B, Basis of Payment. **The Bidder must identify all labour rates that may be required throughout the duration of the First Task Authorization.** Labour rates that are not identified will not be approved and will not be included in the Basis of Payment of the Resulting Contract.

For the labour rates that apply specifically to the First Task Authorization, identify the level of effort (ie. number of days) that will be required to complete the work for this First Task Authorization. The labour rate will then be multiplied by the level of effort to reach an estimated total for that particular person. These totals will then be used to reach the total estimated labour for the First Task Authorization which will be added to the estimates for items 2-7 below to arrive at a total limitation of expenditure for the First Task Authorization. **This value will then be used for evaluation purposes only.**

a) Title, name		
(est) ____ days @ \$---./day	(est.)	\$000,000.00
b) title, name		
(est) ---- days @ \$---./day	(est.)	\$000,000.00
Total Estimated Labour:		\$000,000.00

For the First Task Authorization Request, identify:

2. Material and supplies at actual cost without mark-up, including (list items). (est.) \$000,000.00
3. Purchased equipment at laid down cost without mark-up, including (list items). (est.) \$000,000.00
4. Subcontracting at actual cost incurred without mark-up, (subcontractor name) (est.) \$000,000.00
5. Authorized travel and living expenses at actual cost incurred, except for meals and private vehicle mileage, which are not to exceed the rates given in the Treasury Board Travel and Living Guidelines in effect at the time of travel. A copy of the current Travel Directive Policy is available at: http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp
Travel costs are not to include a mark-up. (est.) \$000,000.00
6. Other direct charges at actual cost incurred without mark-up, including (list items). (est.) \$000,000.00
7. Profit at a firm --% of items -, -, -, above (\$----.),

Solicitation No. - N° de l'invitation

W7702-135604/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

edm002

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

DRDC

EDM-2-35350

not to exceed

(max.)

\$000,000.00

**TOTAL LIMITATION OF EXPENDITURE FOR THE
FIRST TASK AUTHORIZATION REQUEST:**

\$50,000.00

With the exception of the firm elements above, the amounts shown in the respective categories of the above Basis of Payment are estimates and it is the intention that changes from item to item will be accepted for billing purposes as the work proceeds, provided that the total cost of the Contract does not exceed \$50,000.00, GST extra.

GOODS AND SERVICES TAX:

The Total Estimated Goods and Services Tax (GST), \$_____, is not included in the amounts above. The GST is to be shown as a completely separate item on each invoice.

F.O.B. Point: Defence Research and Development Canada - Suffield, Ralston, AB

TASK AUTHORIZATION AUTORISATION DES TÂCHES

All invoices/progress claims must show the reference Contract and Task numbers. Toutes les factures doivent indiquer les numéros du contrat et de la tâche.		Contract no. – N° du contrat	
		Task no. – N° de la tâche	
Amendment no. – N° de la modification		Increase/Decrease – Augmentation/Réduction	
Previous value – Valeur précédente			
To – À		TO THE CONTRACTOR You are requested to supply the following services in accordance with the terms of the above reference contract. Only services included in the contract shall be supplied against this task. Please advise the undersigned if the completion date cannot be met. Invoices/progress claims shall be prepared in accordance with the instructions set out in the contract. À L'ENTREPRENEUR Vous êtes prié de fournir les services suivants en conformité des termes du contrat mentionné ci-dessus. Seuls les services mentionnés dans le contrat doivent être fournis à l'appui de cette demande. Prière d'aviser le signataire si la livraison ne peut se faire dans les délais prescrits. Les factures doivent être établies selon les instructions énoncées dans le contrat.	
Delivery location – Expédiez à			
Delivery/Completion date – Date de livraison/d'achèvement			
		_____ Date for the Department of National Defence pour le ministère de la Défense nationale	
Contract item no. N° d'article du contrat	Services	Cost Prix	
		GST/HST TPS/TVH	
		Total	
APPLICABLE ONLY TO PWGSC CONTRACTS: The Contract Authority signature is required when the total value of the DND 626 exceeds the threshold specified in the contract. NE S'APPLIQUE QU'AUX CONTRATS DE TPSGC : La signature de l'autorité contractante est requise lorsque la valeur totale du formulaire DND 626 est supérieure au seuil précisé dans le contrat.			
_____ for the Department of Public Works and Government Services pour le ministère des Travaux publics et services gouvernementaux			

Instructions for completing DND 626 - Task Authorization

Contract no.

Enter the PWGSC contract number in full.

Task no.

Enter the sequential Task number.

Amendment no.

Enter the amendment number when the original Task is amended to change the scope or the value.

Increase/Decrease

Enter the increase or decrease total dollar amount including taxes.

Previous value

Enter the previous total dollar amount including taxes.

To

Name of the contractor.

Delivery location

Location where the work will be completed, if other than the contractor's location.

Delivery/Completion date

Completion date for the task.

for the Department of National Defence

Signature of the DND person who has delegated **Authority** for signing DND 626 (level of authority based on the dollar value of the task and the equivalent signing authority in the PAM 1.4). **Note:** the person signing in this block ensures that the work is within the scope of the contract, that sufficient funds remain in the contract to cover this task and that the task is affordable within the Project/Unit budget.

Services

Define the requirement briefly (attach the SOW) and identify the cost of the task using the contractor's quote on the level of effort. The Task must use the basis of payment stipulated in the contract. If there are several basis of payment then list here the one(s) that will apply to the task quote (e.g. milestone payments; per diem rates/labour category hourly rates; travel and living rates; firm price/ceiling price, etc.). All the terms and conditions of the contract apply to this Task Authorization and cannot be ignored or amended for this task. Therefore it is not necessary to restate these general contract terms and conditions on the DND 626 Task form.

Cost

The cost of the Task broken out into the individual costed items in **Services**.

GST/HST

The GST/HST cost as appropriate.

Total

The total cost of the task. The contractor may not exceed this amount without the approval of DND indicated on an amended DND 626. The amendment value may not exceed 50% (or the percentage for amendments established in the contract) of the original value of the task authorization. The total cost of a DND 626, including all amendments, may not exceed the funding limit identified in the contract.

Applicable only to PWGSC contracts

This block only applies to those Task Authorization contracts awarded by PWGSC. The contract will include a specified threshold for DND sole approval of the DND 626 and a percentage for DND to approve amendments to the original DND 626. Tasks that will exceed these thresholds must be passed to the PWGSC Contracting Authority for review and signature prior to authorizing the contractor to begin work.

Note:

Work on the task may not commence prior to the date this form is signed by the DA Authority - for tasks within the DND threshold; and by both DND and PWGSC for those tasks over the DND threshold.

Instructions pour compléter le formulaire DND 626 - Autorisation des tâches

N° du contrat

Inscrivez le numéro du contrat de TPSGC en entier.

N° de la tâche

Inscrivez le numéro de tâche séquentiel.

N° de la modification

Inscrivez le numéro de modification lorsque la tâche originale est modifiée pour en changer la portée.

Augmentation/Réduction

Inscrivez le montant total de l'augmentation ou de la diminution, y compris les taxes.

Valeur précédente

Inscrivez le montant total précédent, y compris les taxes.

À

Nom de l'entrepreneur.

Expédiez à

Endroit où le travail sera effectué, si celui-ci diffère du lieu d'affaires de l'entrepreneur.

Date de livraison/d'achèvement

Date d'achèvement de la tâche.

pour le ministère de la Défense nationale

Signature du représentant du MDN auquel on a délégué le **pouvoir d'approbation** en ce qui a trait à la signature du formulaire DND 626 (niveau d'autorité basé sur la valeur de la tâche et le signataire autorisé équivalent mentionné dans le MAA 1.4). **Nota :** la personne qui signe cette attache de signature confirme que les travaux respectent la portée du contrat, que suffisamment de fonds sont prévus au contrat pour couvrir cette tâche et que le budget alloué à l'unité ou pour le projet le permet.

Services

Définissez brièvement le besoin (joignez l'ET) et établissez le coût de la tâche à l'aide de la soumission de l'entrepreneur selon le niveau de difficulté de celle-ci. Les modalités de paiement stipulées dans le contrat s'appliquent à la tâche. Si plusieurs d'entre elles sont prévues, énumérez ici celle/celles qui s'appliqueront à la soumission pour la tâche à accomplir (p.ex. acompte fondé sur les étapes franchies; taux quotidien ou taux horaire établi selon la catégorie de main-d'œuvre; frais de déplacement et de séjour; prix fixe ou prix plafond; etc.). Toutes les modalités du contrat s'appliquent à cette autorisation de tâche et ne peuvent être négligées ou modifiées quant à la tâche en question. Il n'est donc pas nécessaire de répéter ces modalités générales afférentes au contrat sur le formulaire DND 626.

Prix

Mentionnez le coût de la tâche en le répartissant selon les frais afférents à chaque item mentionné dans la rubrique **Services**.

TPS/TVH

Mentionnez le montant de la TPS/TVH, s'il y a lieu.

Total

Mentionnez le coût total de la tâche. L'entrepreneur ne peut dépasser ce montant sans l'approbation du MDN, formulaire DND 626 modifié à l'appui. Le coût de la modification ne peut pas être supérieur à 50 p. 100 du montant initial prévu dans l'autorisation de tâche (ou au pourcentage prévu dans le contrat pour les modifications). Le coût total spécifié dans le formulaire DND 626, y compris toutes les modifications, ne peut dépasser le plafond de financement mentionné dans le contrat.

Ne s'applique qu'aux contrats de TPSGC

Le présent paragraphe s'applique uniquement aux autorisations de tâche accordées par TPSGC. On inscrira dans le formulaire DND 626 un plafond précis qui ne pourra être approuvé que par le MDN et un pourcentage selon lequel le MDN pourra approuver des modifications au formulaire DND 626 original. Les tâches dont le coût dépasse ces plafonds doivent être soumises à l'autorité contractante de TPSGC pour examen et signature avant qu'on autorise l'entrepreneur à débiter les travaux.

Nota :

Les travaux ne peuvent commencer avant la date de signature de ce formulaire par le responsable du MDN, pour les tâches dont le coût est inférieur au plafond établi par le MDN, et par le MDN et TPSGC pour les tâches dont le coût dépasse le plafond établi par le MDN.