



**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 0B2 / Noyau 0B2
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

Title - Sujet OPTICAL TRACKING SYSTEM	
Solicitation No. - N° de l'invitation W7714-166116/A	Date 2015-11-12
Client Reference No. - N° de référence du client W7714-166116	
GETS Reference No. - N° de référence de SEAG PW-\$\$QF-113-25485	
File No. - N° de dossier 113qf.W7714-166116	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2015-11-30	
Time Zone Fuseau horaire Eastern Daylight Saving Time EDT	
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: Martyniuk, David	Buyer Id - Id de l'acheteur 113qf
Telephone No. - N° de téléphone (819) 953-7336 ()	FAX No. - N° de FAX (819) 956-5650
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF NATIONAL DEFENCE DRDC-OTTAWA, BUILDING 29 3701 CARLING AVE OTTAWA Ontario K1A0Z4 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

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

Issuing Office - Bureau de distribution

Electronics, Simulators and Defence Systems Div.
/Division des systèmes électroniques et des systèmes de
simulation et de défense
11 Laurier St. / 11, rue Laurier
8C2, Place du Portage
Gatineau
Québec
K1A 0S5

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

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PART 1 - GENERAL INFORMATION

1.1 Summary

Canada has a requirement to procure one Optical Tracking System to be used by Defence Research and Development Canada. The Optical Tracking System will be used to track targets of various sizes and speeds at various ranges under varying lighting conditions. The Optical Tracking System will consist of a positioner and associated controller, a control console with video tracking capabilities, a display, keyboard, mouse and joystick, and a video camera with lens and associated cabling. The Optical Tracking System will be used for experimentation purposes.

The period of performance will be for an estimated one year after receipt of the deliverables listed in the SOW. The deliverables are required no later than March 31st, 2016.

1.2 Statement of Work

The Work to be performed is detailed under Article 6.2 of the resulting contract clauses.

1.3 Security Requirements

There is no security requirement applicable to this Contract.

1.4 Trade Agreements

The requirement is subject to the provisions of the Agreement on Internal Trade (AIT).

1.5 Federal Contractors Program (FCP)

The Federal Contractors Program (FCP) for employment equity applies to this procurement; see Part 5 – Certifications.

1.6 Debriefings

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 from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

PART 2 - BIDDER INSTRUCTIONS

2.1 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 Manual* (<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 (2015-07-03) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.2 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.

2.2.1 Improvement of Requirement During Solicitation Period

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least 10 working days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 10 working 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 question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.4 Applicable Laws

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

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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.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

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

- Section I: Technical Bid (2 hard copies and 1 soft copy on USB)
- Section II: Financial Bid (2 hard copies and 1 soft copy on USB)
- Section III: Certifications (1 hard copy)

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft 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 [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<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

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. 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.

Section II: Financial Bid

Bidders must submit their financial bid in Canadian dollars and in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

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The Contractor grants to Canada the irrevocable option to provide Digital Video Recording and Training in accordance with Annex A – Statement of Work under the same conditions.

The Contractor agrees that, for the optional work, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment. Canada may exercise this option at any time by sending a written notice to the Contractor before the expiry date of the Contract. The option may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

Section III: Certifications

Bidders must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

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

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

The Bidder must demonstrate their understanding of the requirements contained in this bid solicitation and demonstrate 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 specified in Annex A – Statement of Work.

The Bidder must prepare their Technical Proposal in accordance with the bid solicitation and Annex A – Statement of Work.

	CRITERIA	Method of Compliance (see notes below table)	MET	NOT MET
M1	Optical Tracking System: Complete, portable turnkey solution is demonstrated in the bid.	3		
M2	Payload: The total weight of the payload support bracket configured with one antenna of type A, one antenna of type B, any required counterweights, the Contractor provided video camera and lens in enclosure and any load resulting from any OT system specific cabling requirements must be 60 kg or less.	2		
M3	Positioner: The positioner must: <ul style="list-style-type: none"> a. Support a payload of 95 kg or more, b. Provide an angular travel of $\pm 180^\circ$ or more in azimuth and -10° or less to $+60^\circ$ or more in elevation when fitted with the payload, c. Provide an angular velocity of $0.1^\circ/\text{s}$ or less to $10^\circ/\text{s}$ or more, d. Have a pointing repeatability better or equal to $\pm 0.05^\circ$, e. Be supplied with encoders to provide the azimuth and elevation angles to within $\pm 0.05^\circ$, and f. Provide adjustable limits in azimuth and elevation. 	2		

M4	Positioner mounting platform: A positioner mounting platform preliminary design must be submitted with the bid.	2		
M5	Payload support bracket: Contractor must provide a payload support bracket that is suitable for the unit.	2		
M6	Video camera and lens in enclosure: The video camera and lens in enclosure must: a. Provide a video camera with a minimum resolution of 640x480 pixels.	2		
M7	Video tracking operator console: The video tracking operator console must: a. Be supplied in a 19" rack sufficiently sturdy to protect the system in transit using commercial air-ride truck and air cargo transportation, b. Allow a user to operate the system from within this rack, c. Provide a video card with minimum two video inputs, and d. Be supplied with all required cabling to allow for the video tracking console to be located 5m or more from the positioner.	2 and/or 3		
M8	Video tracking software: The video tracking software of the Optical Tracking System, when used with the equipment proposed as part of the OT system, must: c. Be capable of locking on and tracking: i. A 5m-long ship manoeuvring at a range of 1km or less to 5km or more, ii. A 130m-long vessel manoeuvring at a range of 4km or less to 10km or more, and iii. A 0.3m-diameter suspended metallic sphere used for radar cross section calibration and located at a range of 200m (or closer) to 500m (or further). d. Track objects in closed-loop with a velocity of 10°/s or more, e. Provide detection and tracking of targets 2x2 pixels or larger,	2 and/or 3		

	<ul style="list-style-type: none"> f. Provide the ability to store a minimum of 5 azimuth and elevation angular positions with the ability to point to them using the GUI, g. Provide a minimum of two user-selectable video inputs with the ability to switch between them while tracking, h. Provide a means for the user to manually point the positioner to any azimuth and elevation angle within the positioner angular travel range, i. Support a position cue input which will allow the positioner to point at an angular position provided in real-time from an external source, and j. Provide position cue output (azimuth and elevation angles), in real-time over LAN or serial bus. Alternatively, the Contractor may provide a means of recording to file the GPS, UTC or TAI time stamped positioner azimuth and elevation angles. 	1 and/or 2 and/or 3		
M9	<p>Environmental operating conditions: The positioner, positioner mounting platform, payload support bracket, video camera and lens in enclosure, associated control and video cables and any ancillary items that might be exposed to the elements during normal operation of the OT System must be weather-proof and as such must:</p> <ul style="list-style-type: none"> a. Occasionally endure rain or light snow, 	1		
	<ul style="list-style-type: none"> b. Operate over a temperature range from -5°C or colder to +35°C or hotter, c. Operate in a non-condensing relative humidity of 95% or better, d. Operate (with its payload) in winds up to 20km/h, and e. Withstand (with its payload) wind gusts up to 40km/h without damage. 	2		
M10	<p>Support: The Contractor must provide one year of telephone and email support starting at system delivery.</p>	1 and/or 3		
M11	<p>Optional Digital Video Recorder: It is mandatory for bidders to provide a price for an optional Digital Video Recorder. The digital video recording capabilities must provide storage for a minimum of 25 hours of time stamped video from the OT System video camera. The video must be able to be recorded to a removable medium (e.g. a USB flash drive or external hard disk drive).</p>	2 and/or 3		

M12	<p>Optional Training: It is mandatory for bidders to provide a price for one day of training for one to three personnel at the Contractor's facilities or an alternative Contractor-funded venue. This option, if exercised, will be exercised within 90 days of complete system delivery. The training must include, at a minimum, the following topics:</p> <ul style="list-style-type: none"> i. Optical Tracking System overview ii. OT System setup and disassembly, and iii. OT System operation. 	3		
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- 1: Statement of Compliance – the bidder signs/affirms that the product can do what it says it can do.
- 2: Technical Document – excerpt from manual, documentation, datasheet, table, chart, graph, blueprint, drawing, photograph, plan, engineering design, specification, wind load calculations, experimental results, etc.
- 3: Proposal – Description of solution, which may include a combination of text, images, block diagrams, etc.

Definitions

Payload: The term payload, when used by itself in this document, is intended to imply the total payload comprised of the payload support bracket, antennas A and B, the video camera and lens with enclosure, any required counterweight and the load resulting from any cabling specific to the use of the Optical Tracking System.

4.1.2 Financial Evaluation

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included.

The total evaluated price will include the price of the Optical Tracking System, the price of the option for Digital Video Recording and the price of the option for Training.

4.2 Basis of Selection

4.2.1 Basis of Selection - Mandatory Technical Criteria

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 will be recommended for award of a contract.

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Declaration of Convicted Offences

As applicable, pursuant to subsection Declaration of Convicted Offences of section 01 of the Standard Instructions, the Bidder must provide with its bid, a completed [Declaration Form](http://www.tpsgc-pwgsc.gc.ca/ci-if/formulaire-form-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/formulaire-form-eng.html>), to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

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

5.2.1 Integrity Provisions – List of Names

Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder.

Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s).

Bidders bidding as societies, firms or partnerships do not need to provide lists of names.

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "[FCP Limited Eligibility to Bid](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from [Employment and Social Development Canada \(ESDC\) - Labour's](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) website.

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Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list at the time of contract award.

PART 6 - RESULTING CONTRACT CLAUSES

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

6.1 Security Requirements

There is no security requirement applicable to this Contract.

6.2 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 entitled (to be inserted at contract award), dated (to be inserted at contract award).

6.3 Standard Clauses and Conditions

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

6.3.1 General Conditions

2010A (2015-09-03), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

6.3.2 Supplemental General Conditions

4001 (2015-04-01) Hardware Purchase, Lease and Maintenance apply to and form part of the Contract;

4006 (2010-08-16) Contractor to own Intellectual Property Rights in Foreground Information apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Delivery Date

All the deliverables must be delivered in accordance with the Table in Article 6.6.1.

6.5 Authorities

Listed below are the main authorities for the Contract.

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: David Martyniuk
Title: Supply Officer
Public Works and Government Services Canada
Acquisitions Branch

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Directorate: Electronics, Munitions and Tactical Systems Procurement Directorate
Address: 11 Laurier Street
Gatineau, Quebec
K1A 0S5

Telephone: 819-953-7336
Facsimile: 819-956-5650
E-mail address: David.Martyniuk@tpsgc-pwgsc.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.

6.5.2 Technical Authority

The Technical Authority for the Contract is:

Name: (To be inserted at contract award)

Title: _____

Organization: _____

Address: _____

Telephone: ___ - ___ - ____

Facsimile: ___ - ___ - ____

E-mail: _____

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.

6.5.3 Contractor's Representative

The Contractor's representative for all matters pertaining to the Contract is:

Name: (To be inserted at contract award)

Title: _____

Organization: _____

Address: _____

Telephone: ___ - ___ - ____ Facsimile: ___ - ___ - ____

E-mail: _____.

6.6 Payment

6.6.1 Basis of Payment

In consideration of the Contractor's satisfactory performance of its obligations under the Contract, the Contractor will be paid a firm fixed price of \$ _____ (TBD).

Payments will be made by milestone payments in accordance with the table below. These payments will be made in Canadian Funds with Applicable Taxes extra, Delivered Duty Paid (DDP) at Destination as per Incoterms 2010.

Unless otherwise directed, shipments must be made by the most direct and economical means consistent with normal shipping practice.

The Contractor will be paid in accordance with the following Milestone Payments for the delivery of one Optical Tracking System:

Table of Milestones and Deliverables			
Milestone no.	Deliverable	Payment	Delivery Date
1	Positioner mounting platform and payload support bracket designs delivered and approved by the Technical Authority	10% of the total price for Requirement no.1	No later than 03-31-2016
2	Optical Tracking System assembly completion as confirmed by a Contractor-supplied certification of completion provided to the Technical Authority	55% of the total price for Requirement no.1	No later than 03-31-2016
3	Delivery and acceptance of acceptance test report	25% of the total price for Requirement no.1	No later than 03-31-2016
4	Delivery and acceptance of Optical Tracking System and Documentation.	10% of the total price for Requirement no.1	No later than 03-31-2016

Table of Optional Deliverables:

The Contractor grants to Canada the irrevocable option(s) to provide Digital Video Recording at the specified price and Training at the specified price in accordance with Annex A – Statement of Work under the same conditions:

#	SoW Reference	Specification/Deliverable	Qty	Delivery	Delivery Date	Firm Price
1	5.2.1	Digital video recording	1	DDP	No later than March 31, 2016	\$ _____
2	6.5	Training	1	N/A	No later than March 31, 2016	\$ _____

6.6.2 Limitation of Price

SACC Manual clause C6000C (2011-05-16) Limitation of Price is incorporated by reference and form part of the bid solicitation.

6.6.3 Milestone Payments

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract and the payment provisions of the Contract if:

- a. an accurate and complete claim for payment using 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. all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;
- c. all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada

6.6.4 Taxes – Foreign-based Contractor

Unless specified otherwise in the Contract, the price includes no amount for any federal excise tax, state or local sales or use tax, or any other tax of a similar nature, or any Canadian tax whatsoever. The price, however, includes all other taxes. If the Work is normally subject to federal excise tax, Canada will, upon request, provide the Contractor a certificate of exemption from such federal excise tax in the form prescribed by the federal regulations.

Canada will provide the Contractor evidence of export that may be requested by the tax authorities. If, as a result of Canada's failure to do so, the Contractor has to pay federal excise tax, Canada will reimburse the Contractor if the Contractor takes such steps as Canada may require to recover any payment made by the Contractor. The Contractor must refund to Canada any amount so recovered

6.7 Invoicing Instructions

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. Applicable Taxes 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 Applicable Taxes 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 Technical Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place. The Technical 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.

6.8 Certifications

6.8.1 Compliance

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing cooperation in providing additional information are conditions of the Contract. Certifications are subject to verification by Canada during the entire period of the Contract. If the Contractor does not comply with any certification, fails to provide the additional information, 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.

6.9 Applicable Laws

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

6.10 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 supplemental general conditions:
 - 4001 (2015-04-01) Hardware Purchase, Lease and Maintenance;
 - 4006 (2010-08-16) Contractor to own Intellectual Property Rights in Foreground Information;
- (c) the general conditions 2010A (2015-09-03) Goods (Medium Complexity);
- (d) Annex A, Statement of Work;
- (e) the Contractor's bid dated (TBD)

Solicitation No. - N° de l'invitation
W7714-166116/A
Client Ref. No. - N° de réf. du client
W7714-166116

Amd. No. - N° de la modif.
File No. - N° du dossier
113QF. W7714-166116

Buyer ID - Id de l'acheteur
113QF
CCC No./N° CCC - FMS No./N° VME

Part 6 Resulting Contract Clauses - ANNEX A

STATEMENT OF WORK

ANNEX A - STATEMENT OF WORK

1. TITLE

OPTICAL TRACKING SYSTEM

2. BACKGROUND

Defence Research and Development Canada requires an **Optical Tracking System** to track targets of various sizes and speeds at various ranges under varying lighting conditions. The Optical Tracking System will consist of a positioner and associated controller, a control console with video tracking capabilities, a display, keyboard, mouse and joystick, and a video camera with lens and associated cabling.

The Optical Tracking System will be used for experimentation purposes and will be shielded from the elements when not in use. Still, the positioner and associated components must, on occasion, endure rain and snow, a wide range of temperatures and operate in a gentle breeze.

3. ACRONYMS/GLOSSARY

°	Degree
°C	Degree Celsius
°/s	Degrees per Second
cm	Centimetre
DRDC	Defence Research and Development Canada
GPS	Global Positioning System
GUI	Graphical User Interface
Hz	Hertz
kg	Kilogram
km	Kilometre
LAN	Local Area Network
m	Metre
OT	Optical Tracking
PC	Personal Computer
RF	Radio Frequency
TA	Technical Authority
TAI	International Atomic Time
USB	Universal Serial Bus
UTC	Coordinated Universal Time

4. APPLICABLE DOCUMENTS, REFERENCES AND DEFINITIONS

Appendix #1: Antennas A and B schematic.pdf

Definitions:

Payload: The term payload, when used by itself in this document, is intended to imply the total payload comprised of the payload support bracket, antennas A and B, the video camera and lens with enclosure, any required counterweight and the load resulting from any cabling specific to the use of the Optical Tracking System.

5. Requirements

5.1 Optical Tracking System (mandatory)

Required quantity: 1

Specification	Value
5.1.1 Optical Tracking System (OT System)	Contractor must provide a complete, portable turnkey solution comprised, at a minimum, of the following: <ul style="list-style-type: none"> a. A positioner with associated controller hardware and software, b. A positioner mounting platform, c. A payload support bracket, d. A video camera and lens installed within an outdoor-type enclosure, e. A video tracking operator console in rack, f. Video tracking software and/or hardware, g. All required cabling, and h. Any other item required for the proper operation of the Optical Tracking System.
5.1.2 Payload	The total weight of the payload support bracket configured with one antenna of type A, one antenna of type B, any required counterweights, the Contractor provided video camera and lens in enclosure and any load resulting from any OT system specific cabling requirements must be 60 kg or less.
5.1.3 Positioner	The positioner proposed as part of the OT System must: <ul style="list-style-type: none"> a. Support a payload of 95 kg or more, b. Provide for an angular travel of $\pm 180^\circ$ or more in azimuth and -10° or less to $+60^\circ$ or more in elevation when fitted with the payload, c. Provide an angular velocity of $0.1^\circ/\text{s}$ or less to $10^\circ/\text{s}$ or more, d. Have a pointing repeatability that is better or equal to $\pm 0.05^\circ$, e. Include encoders to provide the azimuth and elevation angles to within $\pm 0.05^\circ$, and f. Provide adjustable limits in azimuth and elevation.
5.1.4 Positioner mounting platform	The positioner mounting platform of the Optical Tracking System must be sufficiently sturdy to support the positioner and its payload during normal optical tracking operation. The platform must be mounted on large air-ride casters that will allow it to be moved short distances on various surfaces indoors and outdoors, including but not limited to gravel and firm natural terrain. The overall size of the positioner mounting platform must not exceed 1.5m width x 1.5m length and overall height of the OT system with positioner mounting platform and payload must not exceed 2.1m. The platform must include a level and levelling pads used for stabilization during operation. A practical means of neatly arranging the cables must be provided. The design of the positioner mounting platform is to be reviewed and approved by the Technical Authority post contract award prior to its manufacturing.
5.1.5 Payload support bracket	The payload support bracket of the Optical Tracking System must provide a rigid bracket capable of supporting side-by-side and separated center-to-center by approximately 100cm both of these cases: <ul style="list-style-type: none"> (i) two antennas of type A or (ii) one antenna of type A and one antenna of type B. The bracket must also support the Contractor-supplied video camera and lens enclosure and provide a means of bore sighting the camera with the antennas. The bracket must be capable of fitting a second video camera (second camera is not part of this requirement). The bracket must be supplied with any counterweights if they are required for load balancing. The design of the payload support bracket must be reviewed and approved by the Technical Authority post contract award prior to its manufacturing.

<p>5.1.6 Video camera and lens in enclosure</p>	<p>The video camera and lens in enclosure of the Optical Tracking System must:</p> <ol style="list-style-type: none"> a. Provide a video camera with a minimum resolution of 640x480 pixels, b. Provide remote-focussing controlled via Contractor supplied hardware or through the Contractor supplied video tracking software or through lens autofocus capabilities, and c. Be suitable to track an object moving at variable speeds through a variety of lighting conditions and clutter environments.
<p>5.1.7 Video tracking operator console</p>	<p>The video tracking operator console of the Optical Tracking System must:</p> <ol style="list-style-type: none"> a. Be supplied in a 19" rack sufficiently sturdy to protect the system in transit using commercial air-ride truck and air cargo transportation, b. Allow a user to operate the system from within this rack, c. Provide a video card with minimum two video inputs, and d. Be supplied with all necessary cabling to allow for the video tracking operator console to be located 5m or more from the positioner.
<p>5.1.8 Video tracking software</p>	<p>The video tracking software of the Optical Tracking System, when used with the equipment proposed as part of the OT system, must:</p> <ol style="list-style-type: none"> a. Provide control of the positioner's angular position and velocity, b. Control the video lens focus if this is not accomplished by Contractor provided external hardware or performed automatically, c. Be able to lock on and track: <ol style="list-style-type: none"> i. A 5m-long ship maneuvering at a range of 1km or less to 5km or more, ii. A 130m-long vessel maneuvering at a range of 4km or less to 10km or more, and iii. A 0.3m-diameter suspended metallic sphere used for radar cross section calibration and located at a range of 200m (or closer) to 500m (or further). d. Track objects in closed-loop with a velocity of 10°/s or more, e. Provide detection and tracking of targets 2x2 pixels or larger, f. Provide the ability to store a minimum of 5 azimuth and elevation angular positions with the ability to point to them using the GUI, g. Provide a minimum of two user-selectable video inputs with the ability to toggle between them while tracking, h. Provide a means for the user to manually point the positioner to any azimuth and elevation angle within the positioner angular travel range, i. Support a position cue input which will allow the positioner to point at an angular position provided in real-time from an external source, and j. Provide position cue output (azimuth and elevation angles), in real-time over LAN or serial bus. Alternatively, the Contractor may provide a means of recording to file the GPS, UTC or TAI time stamped positioner azimuth and elevation angles.
<p>5.1.9 Power supply</p>	<p>The OT System must operate from 115VAC/60Hz nominal power supply. If adapters are required to meet this requirement, the Contractor must supply these adapters.</p>
<p>5.1.10 Environmental operating conditions</p>	<p>The positioner, positioner mounting platform, payload support bracket, video camera and lens in enclosure, associated control and video cables and any ancillary items that might be exposed to the elements during normal operation of the OT System must be weather-proof and as such must:</p> <ol style="list-style-type: none"> a. Occasionally endure rain or light snow, b. Operate over a temperature range from -5°C or colder to +35°C or hotter, c. Operate in a non-condensing relative humidity of 95% or better, d. Operate with its payload (bracket, counterweights, antennas and video camera and lens enclosure) in winds up to 20km/h, and e. Withstand (with its payload) wind gusts up to 40km/h without damage.
<p>5.1.11 Support</p>	<p>The Contractor must provide one year of telephone and email support starting at system delivery.</p>

5.2 Digital Video Recording (option)

The Bidders must provide a price for Digital Video Recording with the following specifications:

Specification	Value
5.2.1 Digital video recording	The Contractor must provide preliminary design for digital video recording capabilities with storage for a minimum of 25 hours of time stamped video from the OT System video camera. The video must be recorded to a removable medium (e.g. a USB flash drive or external hard disk drive).

5.3 Training (option)

The Bidders must provide a price for one-day training with the following specifications:

Specification	Value
5.3.1 Training	The contractor must provide pricing for one day of training for one to three DRDC personnel at their facilities or alternative Contractor funded venue. This option, if exercised, will be exercised within 90 days of complete system delivery. The training must include, at a minimum, the following topics: <ul style="list-style-type: none"> i. Optical Tracking System overview ii. OT System setup and disassembly, and iii. OT System operation

5.4 Documentation

The Contractor must provide the following accessories for requirement 5.1:

Description	Required quantity
English user manual	1
English system specifications	1
English system preventative maintenance schedule	1
English documentation detailing the communications protocol used by the positioner.	1
English documentation detailing the communication protocol for item 5.1.8(i) and 5.1.8(j).	1

5.5 Acceptance testing

The Contractor must produce an acceptance test report sufficiently detailed to clearly demonstrate conformity with requirements 5.1. The acceptance test report must provide for specifications 5.1.1 – 5.1.10:

- a. A description of the test(s) performed;
- b. The result(s) obtained.

6. DELIVERY LOCATION

Defence Research and Development Canada – Ottawa Research Centre
 Building 29
 3701 Carling Avenue
 Ottawa, Ontario.
 K1A 0Z4
 Canada

7. GOVERNMENT FURNISHED EQUIPMENT (GFE)

One antenna of type A and one antenna of type B may be made available at the Contractor’s request on loan for final fitting to payload support bracket and acceptance testing.

Bid Solicitation: W7714-166116

GFE1: TYPE A ANTENNA

Quantity: 1

Part number: WJ-48780

Serial number: 022 or 023

Asset number: 17263 or 17264

GFE2: TYPE B ANTENNA

Quantity: 1

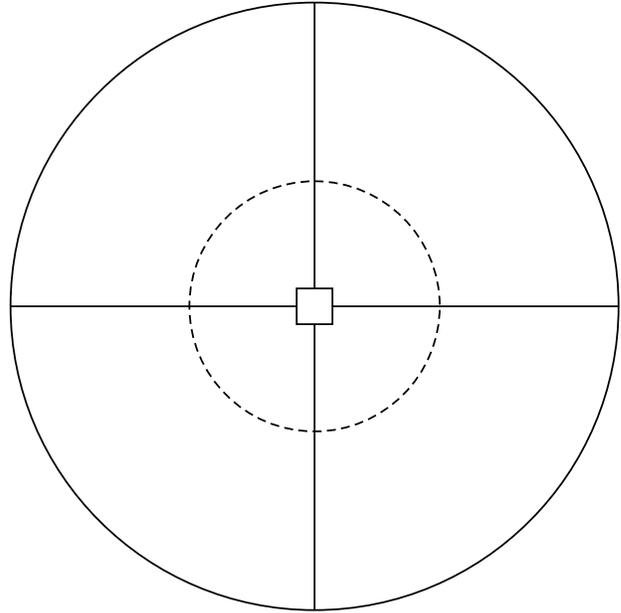
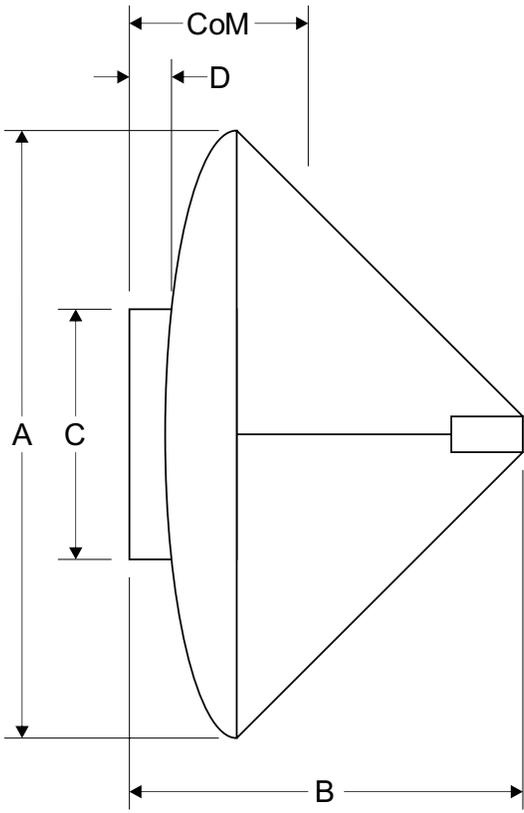
Part number: 808478-001

Serial number: 095

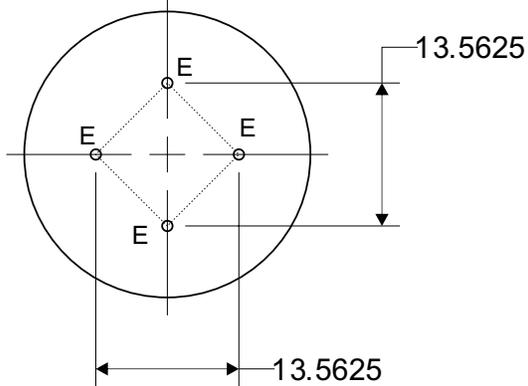
Asset number: 27634

Statement of Work

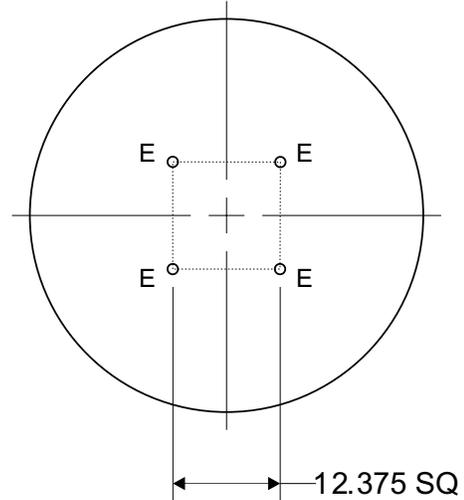
ANTENNA A AND B SCHEMATIC



ANTENNA A MOUNTING HOLES



ANTENNA B MOUNTING HOLES



Antenna	A	B	C	D	E	CoM	Weight (lb)
Type A	25.25	14.8	14.9	1.4	1/4-20 THREAD	4.1	7
Type B	36.1	24.3	19	2		7.8	13

- CoM CORRESPONDS TO THE CENTER OF MASS LOCATION OF THE ANTENNA
- ALL DIMENSIONS IN INCHES
- ALL VALUES PROVIDED ARE APPROXIMATE