



**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:**

MAT.DESProc2-DOSE2@forces.gc.ca

**REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION**

Proposal To: Department of National Defence

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 au: Ministère de la défense nationale

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

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

Issuing Office - Bureau de distribution

Department of National Defence
DES Proc 2-5-3
Woodline Building
2 Constellation Drive
Ottawa ON

Title - Sujet Space System Engineering and Cost Analysis	
Solicitation No. - N° de l'invitation W6369-200196	Date 2019-12-02
Client Reference No. - N° de référence du client W6369-200196	
GETS Reference No. - N° de référence de SEAG	
File No. - N° de dossier W6369-200196	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin January 13, 2020	Time Zone Fuseau horaire 2pm Eastern Standard Time EST
F.O.B. - F.A.B.	
Plant-Usine: Destination: <input checked="" type="checkbox"/> Other-Autre:	
Address Enquiries to: - Adresser toutes questions à: Cherie Murray	Buyer Id - Id de l'acheteur DES Proc 2-5-3
Telephone No. - N° de téléphone 613-901-8477	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: To be inserted upon award	

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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List of Annexes to the Resulting Contract

Annex A-1, Statement of Work – **Stream 1 – Constellation Design Concept**
Annex A-2, Statement of Work – **Stream 2 – Data Exploitation Concept**
Annex A-3, Statement of Work – **Stream 3 – Alternate Mission Concept**

Appendix A to Annex A – Task Authorization (TA) form
Appendix B to Annex A – Certifications at the TA stage;

Annex B, Basis of Payment;
Annex C, Security Requirements Check List;

List of Attachments to Part 3 (Bid Preparation Instructions):

Attachment 3.1: Electronic Payment Instruments
Attachment 3.2: Bid Submission Form

List of Attachments to Part 4 (Evaluation and Procedures and Basis of Selection):

Attachment 4.1: Mandatory and Point-Rated Technical Evaluation Criteria for **Stream 1 – Constellation Design Concept**

Attachment 4.2: Financial Proposal for **Stream 1 – Constellation Design Concept**

Attachment 4.3: Mandatory and Point-Rated Technical Evaluation Criteria for **Stream 2 – Data Exploitation Concept**

Attachment 4.4: Financial Proposal for **Stream 2 – Data Exploitation Concept**

Attachment 4.5: Mandatory and Point-Rated Technical Evaluation Criteria for **Stream 3– Alternate Mission Concept**

Attachment 4.6: Financial Proposal for **Stream 3– Alternate Mission Concept**

Attachment 4.7: Project Reference Response Template

List of Attachments to Part 5 (Certifications):

Attachment 5.1: Federal Contractors Program for Employment Equity – Certification

Attachment 5.2: Joint Venture Certification (*to be used only if a Joint Venture is being proposed*)



PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation is divided into seven parts plus attachments 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 and Additional Information: includes the certifications and additional information to be provided;
- Part 6 Security, Financial and Other Requirements: includes specific requirements that must be addressed by Bidders; and
- Part 7 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, Security Requirements, the Security Requirements Checklist, the Electronic Payment Instruments, the Federal Contractors Program for Employment Equity - Certification, the Insurance Requirements, DND 626 Task Authorization Form and any other annexes.

1.2 Summary

1.2.1

- (a) While this requirement is in support of Canada's Whole-of-Government approach to delivering next-generation Earth Observation capabilities, the requirements listed to support the development of concept studies have been limited to DND/CAF unclassified requirements and priorities at this time. Other Government Departments and Agencies may issue other Requests for Proposals for their own requirements and priorities.
- (b) This bid solicitation is being issued to satisfy a requirement of the Department of National Defence and the Canadian Armed Forces for Space System Engineering and Cost Analysis to be conducted on the following 3 Streams to best meet the requirements as described in its Space Based Surveillance requirements documents:
 - 1- Stream 1: Constellation Design concept – **Annex A-1** defines the scope of this work
 - 2- Stream 2: Data Exploitation concept – **Annex A-2** defines the scope of this work
 - 3- Stream 3: Alternate mission concept – **Annex A-3** defines the scope of this work

Bidders may submit a proposal for one or more Streams. All proposals will be evaluated using the mandatory and point rated technical evaluation criteria for each of the Streams.



Additional follow-on work may be required after the delivery of the Space System Engineering and Cost Analysis for each of the Streams. This work is optional and, if required, will be issued to the Contractor(s) through task authorization(s) under each contract.

- (c) It is intended to result in the award of up to 3 contracts for each of the 3 Streams, for a maximum total of 9 contracts. The period of each contract will be from contract award to March 31, 2020, with the option to extend the contract(s) for 2 six-month irrevocable options allowing Canada to extend the term of the contract(s).

1.2.2 There are security requirements associated with this requirement. For additional information, consult Part 6 - Security, Financial and Other Requirements, and Part 7 - Resulting Contract Clauses. For more information on personnel and organization security screening or security clauses, Bidders should refer to the [Contract Security Program](http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html) of Public Works and Government Services Canada (<http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html>) website.

1.2.3 The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), the Canada-European Union Comprehensive Economic and Trade Agreement (CETA), and the Canadian Free Trade Agreement (CFTA).

1.3 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 10 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) (<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](#) (2019-03-04) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of [2003](#), Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days
Insert: 180 days



2.2 Submission of Bids

Bids must be submitted only to the Contracting Authority by the date and time indicated on page 1 of the bid solicitation to the following email address:

MAT.DESProc2-DOSE2@forces.gc.ca

2.3 Former Public Servant

Contracts awarded to 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 awarded to FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required 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 with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

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 FPSs 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 Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **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 adjustment 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 Applicable Taxes.

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 15 calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the 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.

2.5 Applicable Laws

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

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



2.6 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 days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

As the Bidder will submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions.

The bid must be gathered per section and separated as follows:

Section I: Technical Bid
Section II: Financial Bid
Section III: Certifications

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 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.

Section II: Financial Bid

3.1.1 Bidders must submit their financial bid in accordance with the following Attachments:

Attachment 4.2 – Financial Proposal for **Stream 1 – Constellation Design Concept**
Attachment 4.4 – Financial Proposal for **Stream 2 – Data Exploitation Concept**
Attachment 4.6 – Financial Proposal for **Stream 3 – Alternate Mission Concept**

3.1.2 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Attachment 3.1 Electronic Payment Instruments, to identify which ones are accepted.



If Attachment 3.1 Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

3.1.3 Exchange Rate Fluctuation

The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

3.1.4 SACC Manual Clauses

Section III: Certifications

Bidders must submit the certifications and additional information 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 Technical Evaluation

Mandatory and point rated technical evaluation criteria are included in the following Attachments:

Attachment 4.1: Mandatory and point rated evaluation criteria for **Stream 1 – Constellation Design concept**

Attachment 4.3: Mandatory and point rated evaluation criteria for **Stream 2 – Data Exploitation concept**

Attachment 4.5: Mandatory and point rated evaluation criteria for **Stream 3 – Alternate Mission concept**

4.1.2 Financial Evaluation

4.1.2.1 Mandatory Financial Criteria

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

4.2 Basis of Selection

4.2.1 Basis of Selection – Highest Combined Rating of Technical Merit and Price

1. To be declared responsive, a bid must:



- a. comply with all the requirements of the bid solicitation; and
 - b. meet all mandatory criteria.
2. Bids not meeting (a) or (b) will be declared non-responsive.
 3. The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 70% for the technical merit and 30% for the price.
 4. To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 70%.
 5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30%.
 6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
 7. Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 70/30 ratio of technical merit and price, respectively. For this example, the total available points equals 135 and the lowest evaluated price is \$45,000 (45).

Basis of Selection - Highest Combined Rating Technical Merit (70%) and Price (30%)

		Bidder 1	Bidder 2	Bidder 3
Overall Technical Score		115/135	89/135	92/135
Bid Evaluated Price		\$55,000.00	\$50,000.00	\$45,000.00
Calculations	Technical Merit Score	$115/135 \times 70 = 59.63$	$89/135 \times 70 = 46.15$	$92/135 \times 70 = 47.70$
	Pricing Score	$45/55 \times 30 = 24.55$	$45/50 \times 30 = 27$	$45/45 \times 30 = 30.00$
Combined Rating		84.18	73.15	77.70
Overall Rating		1st	3rd	2nd



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. Unless specified otherwise, 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 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the Integrity declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-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 specified will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real property agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

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" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

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 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

6.1 Security Requirements

1. At the date of bid closing, the following conditions must be met:
 - (a) the Bidder must hold a valid organization security clearance as indicated in Part 7 - Resulting Contract Clauses;
 - (b) the Bidder's proposed individuals requiring access to classified or protected information, assets or sensitive work sites must meet the security requirements as indicated in Part 7 - Resulting Contract Clauses;
 - (c) the Bidder must provide the name of all individuals who will require access to classified or protected information, assets or sensitive work sites;
2. For additional information on security requirements, Bidders should refer to the [Contract Security Program](http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html) of Public Works and Government Services Canada (<http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html>) website.



PART 7 - RESULTING CONTRACT CLAUSES

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

7.1 Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex "A-X". (to be inserted at contract award).

7.1.1 Optional Goods and/or Services

The Contracting Authority may exercise the option at any time before the expiry of the Contract by sending a written notice to the Contractor

7.1.2 Optional Task Authorizations

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.

7.1.2.1 Task Authorization Process

1. The Procurement Authority will provide the Contractor with a description of the task using the DND 626, Task Authorization Form specified in Appendix A to Annex A-X (to be inserted at contract award)
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 Procurement Authority within 10 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 Procurement 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.

7.1.2.2 Task Authorization Limit

The Procurement Authority may authorize individual task authorizations up to a limit of \$500,000.00, Applicable Taxes included, inclusive of any revisions.

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

7.1.2.4 Canada's Obligation - Portion of the Work - Task Authorizations

Canada's obligation with respect to the portion of the Work under the Contract that is performed through task authorizations is limited to the total amount of the actual tasks performed by the Contractor.



7.1.2.5 Task Authorization - Department of National Defence

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

7.2 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>) issued by Public Works and Government Services Canada.

7.2.1 General Conditions

2035 (2018-06-21), General Conditions - Higher Complexity - Services, apply to and form part of the Contract.

7.2.2 Supplemental General Conditions

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

7.3 Security Requirements

7.3.1 The following security requirements apply and form part of the Contract.

The Contractor/Offeror must, at all times during the performance of the Contract/Standing Offer, hold a valid Facility Security Clearance at the level of **SECRET**, issued by the Contract Security Program (CSP) of the Industrial Security Sector (ISS), Public Works and Government Services (PWGSC).

2. The Contractor/Offeror personnel requiring access to sensitive work site(s) must EACH hold a valid personnel security screening at the level of **SECRET, or RELIABILITY STATUS, as required**, granted or approved by the CSP/ISS/PWGSC.
3. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of the CSP/ISS/PWGSC.
4. The Contractor/Offeror must comply with the provisions of the:
 - (a) Security Requirements Check List and security guide (if applicable), attached at Annex C
 - (b) Industrial Security Manual (Latest Edition).

7.4 Term of Contract

7.4.1 Period of the Contract

The period of the Contract is from date of Contract to March 31, 2020 inclusive.

7.4.2 Delivery Date

All the deliverables must be received and accepted on or before March 31, 2020.



7.4.3 Option to Extend the Contract

The Contractor grants to Canada the irrevocable option to extend the term of the Contract by up to 2 additional 6 month periods under the same conditions. The Contractor agrees that, during the extended period of the Contract, 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 at least 15 calendar days 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.

7.5 Authorities

7.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Cherie Murray
Department of National Defence
DES Proc 2-5-3
Woodline Building
2 Constellation Drive
Ottawa ON

Telephone: 613-943-6844
E-mail address: cherie.murray@forces.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.

7.5.2 The Procurement Authority for the Contract is: *to be inserted at contract award*

_____ (*Name of Procurement Authority*)

_____ (*Title*)

_____ (*Organization*)

_____ (*Address*)

Telephone: ____ - ____ - ____

Facsimile: ____ - ____ - ____

E-mail: _____.

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority



7.5.3 Technical Authority – *to be inserted at contract award*

The Technical Authority for the Contract is:

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: ___ - ___ - _____
Facsimile: ___ - ___ - _____
E-mail address: _____

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all 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.

7.5.4 Contractor's Representative – *to be inserted at contract award*

The Contractor's Representative for the Contract is:

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: ___ - ___ - _____
Facsimile: ___ - ___ - _____
E-mail address: _____

7.6 Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a [Public Service Superannuation Act](#) (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with [Contracting Policy Notice: 2012-2](#) of the Treasury Board Secretariat of Canada

7.7 Payment

7.7.1 Basis of Payment

7.7.1.1 Basis of Payment - Firm Price, Firm Unit Price(s) or Firm Lot Price(s)

For the Work described in Section 3.1 of the Statement of Work in Annex A-**X** (*annex number to be inserted at contract award*)



In consideration of the Contractor satisfactorily completing its obligations under the Contract, the Contractor will be paid a firm price, for a cost of \$_____ (*amount to be inserted at contract award*). Customs duties are excluded and Applicable Taxes are extra.

For the firm price portion of the Work only, 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.

7.7.1.2 Optional Task Authorization with a Maximum Price:

For the Work described in Section 3.2 of the Statement of Work in Annex A-X (*annex number to be inserted at contract award*):

The Contractor will be paid for the Work specified in the authorized task authorization, in accordance with the Basis of payment at Annex B.

Canada's liability to the Contractor under the authorized task authorization must not exceed the limitation of expenditure specified in the authorized task authorization. Custom duties are excluded and Applicable Taxes are extra.

No increase in the liability of Canada or in the price of the Work specified in the authorized task authorization resulting from any design changes, modifications or interpretations of the Work will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been authorized, in writing, by the Contracting Authority before their incorporation into the Work.

7.7.2 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);
- e. Wire Transfer (International Only);
- f. Large Value Transfer System (LVTS) (Over \$25M)

7.8 Invoicing Instructions

7.8.1 Single Payment

For the Work described in Section 3.1 of the Statement of Work in Annex A-X (*number to be inserted at contract award*):

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



7.8.2 Monthly Payments

For the Optional Work described in Section 3.2 of the Statement of Work in Annex A-X (*number to be inserted at contract award*):

Canada will pay the Contractor on a monthly basis for work performed during the month covered by the invoice 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 performed has been accepted by Canada.

7.9 Certifications and Additional Information

7.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

7.10 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____ (*name of the province or territory as specified by the Bidder in its bid, if applicable, is to be inserted at contract award*).

7.11 Priority of Documents

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

- (a) the Articles of Agreement;
- (b) the supplemental general conditions 4006 (2010-08-16) Contractor to Own Intellectual Property Rights in Foreground Information;
- (c) the general conditions 2035 (2018-06-21), General Conditions - Higher Complexity - Services;
- (d) Annex A-X (*annex number to be specified at contract award*), Statement of Work;
- (e) Annex B, Basis of Payment;
- (f) Annex C, Security Requirements Check List (*if applicable*);
- (g) the Contractor's bid dated _____, (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award:* ", as clarified on _____ " **or** ", as amended on _____ " *and insert date(s) of clarification(s) or amendment(s)*).

7.12 Foreign Nationals (Canadian Contractor **OR** Foreign Contractor)

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

OR



SACC *Manual* clause [A2001C](#) (2006-06-16) Foreign Nationals (Foreign Contractor)

7.13 Insurance

The Contractor is responsible for deciding if insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any insurance acquired or maintained by the Contractor is at its own expense and for its own benefit and protection. It does not release the Contractor from or reduce its liability under the Contract.



Department of National Defence
Ministère de la défense nationale

Request for Proposals No. W6369-200196
DG Space Engineering concept studies

ANNEX “A-1”

STATEMENT OF WORK

STREAM 1 – CONSTELLATION DESIGN CONCEPT



1.0 Requirement

The Department of National Defence and Canadian Armed Forces' (DND/CAF) Director General Space (DG Space) requires an engineering and costing analysis to be conducted on a space-based surveillance system constellation design concept to best meet its requirements, as described in its draft Space-Based Surveillance Requirements document (SBS-RD) version 2.0.

2.0 Background and Scope

2.1 Background

This Statement of Work (SOW) is in support of Canada's Whole-of-Government approach to delivering next-generation Earth Observation capabilities. The requirements listed to support the development of concept studies have been limited to DND/CAF unclassified requirements and priorities at this time.

The CAF has an enduring mandate to defend Canada and North America, and contribute to an effective deterrent to threats. Concurrently, CAF must maintain the capability to reach and respond to a range of domestic and international threats and emergencies. Space systems and access are critical for surveillance to the CAF. Consequently, the CAF is dependent on the full spectrum of capabilities derived from space assets and relies on space-enabled capabilities to conduct operations at home and abroad.

2.2 Scope

DG Space requires a detailed engineering and costing analysis to be conducted on a space-based surveillance system constellation design concept that best meet its requirements, as described in its SBS-RD. Follow-on analysis may also be required.

3.0 Tasks

3.1 Engineering and costing analysis of a Constellation design concept

The Contractor must conduct a detailed review of the SBS-RD and develop an engineering and costing analysis of Synthetic Aperture Radar based constellations. The proposed design concepts must address all of the priority 1 and 2 requirements, and at a minimum, 50% of the remaining priorities 3-5 listed in the SBS-RD. A summary of these requirements and priorities are listed in Appendix B to Annex A-1.

The constellation design concepts are required to include technology that is or will be at Technology Readiness Level (TRL) 7-9 in 3-5 years, as defined in Appendix C to Annex A-1.

The engineering and costing analysis is to be written in accordance with the template in Appendix A and must at minimum include the following:

- a. Tasking, Telemetry, and Communications requirements;
- b. Communications links (frequency, bandwidth);
- c. Constellation composition, size and orbit(s);



- d. Recommended sensors/ sensor types, secondary payload, duty cycle, bus, frequency band(s);
- e. Detailed analysis of the sensor parameters (swath, resolution, Noise Equivalent Sigma Zero (NESZ), ambiguity, bandwidth, scene size);
- f. Technology, primary and secondary payload(s) and operating parameters across the space-based surveillance system;
- g. Identification of any possible requirements that cannot be met;
- h. Identification of all potential risks with their associated mitigation strategy, including the impact statement and probability of occurrence; and
- i. A detailed options analysis of proposed constellation design concepts including scalable cost estimates of multiple revisit times and resolutions. The cost estimates of the proposed constellation design concepts must contain a detailed description of the assumptions made in establishing the Work Breakdown Structure level 2 cost estimates. The estimates must clearly illustrate the cost-benefit analysis of the recommended design options and describe the trade-offs made with their associated costing.

3.2 Optional Professional services

The Contractor may be required to perform further analysis of the deliverables. These activities may include but are not limited to:

- a. Feasibility/trade-off studies of mission concepts including a 15 year design life;
- b. Payload compatibility assessments;
- c. SAR/EO/IR capability analysis; and
- d. Further cost and requirements scalability analysis.

4.0 Deliverables

4.1 Engineering and costing analysis of a Constellation design concept

4.1.1 Written Engineering and costing analysis report as per Section 3.1 of this SOW.

4.1.2 Presentation of the engineering and costing analysis to DND/CAF stakeholders.

4.1.3 Multi-media animation file which will visually demonstrate how the proposed concepts would operate. The animation must be free of all Contractor logos.

4.2 Optional professional services

Deliverables for optional professional services will be specified at time of Task Authorization.

5.0 Format of Deliverables

All deliverables must be submitted in electronic format using MS Office Suite software and written in English.

Presentation material should be in Power Point format. Documents provided in Adobe PDF format must not be protected against copy of text and figures.

All simulation scenarios that are included (e.g. with STK) must be delivered in CD-ROM, DVD-ROM, or transferred by FTP (through arrangement with the TA).



6.0 Schedule of Deliverables

Reports and Documents	Due Date
Written Engineering and costing analysis report	20 March 20
Presentation of the engineering and costing analysis	Prior to 31 March 20

6.1 Schedule of Meetings

Meeting	Date	Location
Kick-Off	Contract Award + 1 week	DND/CAF (preferable) or telcon
Interim Review	Contract Award + 5 weeks	DND/CAF (preferable) or telcon

7.0 Acceptance

All deliverables under this SOW must be submitted to the Technical Authority for review and approval.

8.0 Work Location

All work shall be conducted at the Contractor's place of business. The presentation will take place at National Defence Headquarters, located at 101 Colonel By Drive, Ottawa, ON, or at 3500 Carling Avenue, Ottawa, ON. The time and place will be specified by the Technical Authority.

8.1 Travel

Travel will not be reimbursed under this contract.

9.0 Applicable Documents

The following documents provide additional information and guidelines that either may clarify the contents or are pertinent to the requirement of this SOW.

RD No.	Document Number	Document Title	Rev. No.	Date
RD-1.		DND/CAF Space-Based Surveillance Requirements Document	2	October 2019



Appendix A to Annex A-1. Report Template

General Instructions

Electronic Copies

Electronic documents must be prepared using the most appropriate tool (Microsoft Word, Excel, MS Project, etc.); released versions must be delivered in electronic format and may be in PDF. Documents must be delivered via e-mail, if larger than 10 Mb direct transfer (FTP) is preferred. For direct transfer, a notification of the document's readiness and location on a contractor repository must be sent to the Technical Authority.

Electronic copies of text documents must be formatted for printing on 8.5" x 11" paper. The electronic file name and the identification number written on the document itself must have the following format:

YYYY-MM-DD_PSCD-CIE_ContractNumber_short title

Where:

YEAR-MONTH-DAY: Date Tracking Number
PSCD: The four letter acronym of this SOW
CIE: Name of the Company (no space, no hyphen)
Contract Number: For example: _9F028-07-4200-03

Emails are to contain the SOW acronym or equivalent identifier in the "Subject" line. If necessary to send hard copy and media they are to be addressed to:

Director Space Requirements/ ISR Program Manager
Director General Space
National Defence Headquarters
101 Colonel By Drive
Ottawa, ON. K1A 0K2

Enclosed documents must be labelled with the following information:

Company Name
Document Title
Document Number and Revision Number
SOW Number
Contract Number
Document Numbers

All pages must contain the Document Number at the top of the page. Document Numbers must include revision status and volume identification as applicable.

Document Structure and Content

Except as otherwise specified, all documents must have the overall structure as follows:

Cover/Title Page;
Table of Contents;



Scope;
Applicable and Reference Documents;
Body of Document; and
Annexes

Cover/Title Page

The title page must contain the following information:

Document Number and date
Revision indicator / date of Rev.
Document Title
SOW Name
Contract Number
Prepared for: Director Space Requirements
Prepared by: Contractor name, CAGE Code, address, and phone number
© HER MAJESTY THE QUEEN IN RIGHT OF CANADA [YEAR]

Table of Contents

The table of contents must list the title and page number of each titled paragraph and subparagraph, at least down to the third level inclusive. The table of contents must then list the title and page number of each heading, figure, table, and annex, in that order.

Scope

This section must provide a brief overview of the Area of Interest(s) to which the document applies, and a summary of the content provided.

Applicable and Reference Documents

This section must list by Document Number and title, all applicable and reference documents. This section must also identify the source of all applicable and reference documents and the revision indicator.

Executive Summary

Body of Document

The body of the document must be prepared in accordance with the above instructions and report on the following at a minimum. Each section begins with a new page.

Constellation Design Concept

Insert Contractor reports or deliverables

Conclusion

Overall recommendation of an option based on the results described above.

Annexes

Annexes and appendices may be used to provide information published separately for convenience of organizing the document.



Appendix B to Annex A-1. Matrix of requirements and priorities

Requirements Organized by Priority:

Req# Number/ Title	Priority
PRIORITY 1	
[Req 100.1] Compliance with GC Directives & Policies	1
[Req 100.2] Ground Infrastructure & Network Security	1
[Req 100.3] Archive	1
[Req 100.5] Secure Up/Downlinks	1
[Req 100.6] Security & Privacy of Canadians	1
[Req 100.8] Sharing with OGD, Allies and Coalition Partners	1
[Req 200.2] SBS System Manoeuvrability	1
[Req 200.6] Geo-Locating Accuracy	1
[Req 200.8] Optimized Downlink and Ground Stations Contact Management	1
[Req 200.10] Sharing of Imagery & Value Added Products	1
[Req 200.12] Onboard Processing with NRT Ship Detection	1
[Req 200.23] Global Access	1
[Req 200.24] Canada's Land Mass & Arctic	1
[Req 200.25] Multi-Role Operational Surveillance Capability	1
[Req 200.28] Archive – Classified and Unclassified	1
[Req 300.6] Emergency Override Priority	1
[Req 300.7] Accept Low-Latency Ally Collection Request	1
[Req 300.9] SAR Imagery of Land Regions	1
[Req 300.10] AWAS Coverage of North American and Arctic AOI's	1
[Req 300.13] Produce High-Resolution Imagery - Narrow Field of View	1
[Req 300.14] Produce High-Resolution Imagery – Wide Field of View	1
[Req 300.18] Ship Detection of Naval TG Surveillance Zones	1
[Req 300.19] Global Latency	1
[Req 300.21] EO & Other Spectral Imagery	1
[Req 300.25] UNCLAS ELINT for RMP	1
[Req 300.28] Ship/Ice Discrimination	1
[Req 400.1] Efficient Data Processing, Exploitation, and Dissemination (PED)	1
[Req 400.4] Change Detection	1
[Req 400.8] Velocity Detection	1
[Req 400.14] Vessel Identification and Characterization	1
PRIORITY 2	
[Req 100.4] WoG Accessibility	2
[Req 200.1] Security & Protection Measures	2
[Req 200.3] System Enduring Capability	2
[Req 200.4] Space Mission Life	2
[Req 200.5] Ground Segment Life	2
[Req 200.15] Cross-Domain Connectivity	2
[Req 200.17] Data Format	2
[Req 200.18] Integration of Technology	2
[Req 200.19] System-of-Systems Capability	2
[Req 200.20] Direct Satellite Tasking by a Naval Task Group	2
[Req 200.22] 24/7 Operations	2



[Req 200.27] Restricted Visibility	2
[Req 300.1] Collection Management and Planning	2
[Req 300.2] Commercial GEOINT Intelligence Systems	2
[Req 300.3] Integration of Data Acquisitions by Other SBS Systems	2
[Req 300.4] Queuing and Cross-Queuing: Automated or Semi-Automated Generation of New Collection Requests	2
[Req 300.8] Integrate METOC Forecasting in Overhead Collection Planning	2
[Req 300.11] Contiguous SAR Swath Coverage	2
[Req 300.15] AWAS coverage of DND's Global Maritime Surveillance AOIs	2
[Req 300.16] Beam Modes & Resolutions	2
[Req 300.20] Low-Latency Ordering	2
[Req 300.22] Digital Elevation Model	2
[Req 300.23] CMT Coverage	2
[Req 300.24] CMT Duty Cycle	2
[Req 300.27] Material Discrimination and Identification	2
[Req 300.29] Improved Charting of Navigation Hazards	2
[Req 400.3] Characterization of Snow	2
[Req 400.6] SAR Properties, Imagery and RF Emissions Analysis	2
[Req 400.7] Vessel Detection Parameters	2
[Req 400.10] Ship Wake Analysis	2
[Req 400.11] Ship Detection in all Atmospheric Conditions	2
[Req 400.12] Defeat Camouflage, Concealment and Deception	2
[Req 400.15] 3D Extraction	2
[Req 400.16] Exploit Transmission Information	2
[Req 400.18] AIS Detection Performance	2
[Req 400.19] Association Latency	2
[Req 400.20] Concurrent Surveillance	2
[Req 400.22] SBS Surveillance with Automated Detections	2
[Req 400.24] Roads and Runways Activity Assessment	2
[Req 400.25] Static Maritime Facilities	2
[Req 400.26] Ship Detection Close to Land	2
[Req 400.28] Overall Training	2
[Req 400.29] Tailored Training	2
PRIORITY 3	
[Req 100.7] Data Plan	3
[Req 200.7] Interoperability	3
[Req 200.11] Network Speed and Bandwidth	3
[Req 200.13] Low-Latency Cross-Queuing	3
[Req 200.14] Data Analysis Tools	3
[Req 200.16] Interface	3
[Req 200.21] Tactical User or Theatre Ordering Capability	3
[Req 200.26] Accessibility of Data Archive	3
[Req 200.29] Archive Life	3
[Req 300.5] Product Ordering & Delivery	3
[Req 300.26] Advanced Capabilities	3
[Req 400.2] SBS System Ground-Based Components	3
[Req 400.5] Real-time Motion of Objects	3
[Req 400.9] Sea State and Ocean Current Detection	3
[Req 400.13] Chemical Biological Radiation Nuclear and explosives (CBRNe)	3
[Req 400.17] AIS & CMT Geo-Location Accuracy	3
[Req 400.21] SOM	3



[Req 400.23] Big Data Exploitation	3
[Req 400.27] Behavioural Information	3
PRIORITY 4	
[Req 200.9] Access the SBS Asset via Line-of-sight Communications	4
[Req 200.30] Data Archive Connectivity	4
[Req 300.12] Capacity for 50% Growth of Global AOIs	4
[Req 300.17] Rapid Beam Mode Switching	4
[Req 300.30] Receiving Tactical Orders in Theatre	4
PRIORITY 5	
[Req 500.1] R&D Community Access to Operational Data	5
[Req 500.2] Signature Library	5



Appendix C to Annex A-1. Technology Readiness Levels

Source: ISED website 10 April 2019, <https://www.ic.gc.ca/eic/site/080.nsf/eng/00002.html>

Level 1: Basic principles of concept are observed and reported. Scientific research begins to be translated into applied research and development. Activities might include paper studies of a technology's basic properties.

Level 2: Technology concept and/or application formulated. Invention begins. Once basic principles are observed, practical applications can be invented. Activities are limited to analytic studies.

Level 3: Analytical and experimental critical function and/or proof of concept. Active research and development is initiated. This includes analytical studies and/or laboratory studies. Activities might include components that are not yet integrated or representative.

Level 4: Component and/or validation in a laboratory environment. Basic technological components are integrated to establish that they will work together. Activities include integration of "ad hoc" hardware in the laboratory.

Level 5: Component and/or validation in a simulated environment. The basic technological components are integrated for testing in a simulated environment. Activities include laboratory integration of components.

Level 6: System/subsystem model or prototype demonstration in a simulated environment. A model or prototype that represents a near desired configuration. Activities include testing in a simulated operational environment or laboratory.

Level 7: Prototype ready for demonstration in an appropriate operational environment. Prototype at planned operational level and is ready for demonstration in an operational environment. Activities include prototype field testing.

Level 8: Actual technology completed and qualified through tests and demonstrations. Technology has been proven to work in its final form and under expected conditions. Activities include developmental testing and evaluation of whether it will meet operational requirements.

Level 9: Actual technology proven through successful deployment in an operational setting. Actual application of the technology in its final form and under real-life conditions, such as those encountered in operational tests and evaluations. Activities include using the innovation under operational conditions.



Appendix D to Annex A-1. Acronyms and Abbreviations

AWAS	Active Wide-Area-Surveillance
AOI	Area of Interest
CAF	Canadian Armed Forces
DND	Department of National Defence
EO	Earth Observation
FTP	File Transfer Protocol
ISR	Intelligence, Surveillance and Reconnaissance
NESZ	Noise Equivalent Sigma Zero
PED	Processing, Exploitation, Dissemination
RFP	Request for Proposal
SAR	Synthetic Aperture Radar
SBS-RD	Space-Based Surveillance Requirements Document
SOW	Statement Of Work
STK	Systems Toolkit
TA	Technical Authority
TCPED	Tasking, Collection, Processing, Exploitation, Dissemination
TRL	Technology Readiness Level
TT&C	Tracking, Telemetry & Command
WBS	Work Breakdown Structure



ANNEX “A-2”

STATEMENT OF WORK

STREAM 2 – DATA EXPLOITATION CONCEPT

1.0 Requirement

The Department of National Defence and Canadian Armed Forces’ (DND/CAF) Director General Space (DG Space) requires an engineering and costing analysis to be conducted on a space-based surveillance system data exploitation design concept to best meet its requirements, as described in its draft Space-Based Surveillance Requirements document (SBS-RD) version 2.0.

2.0 Background and Scope

2.1 Background

This Statement of Work (SOW) is in support of Canada’s Whole-of-Government approach to delivering next-generation Earth Observation capabilities. The requirements listed to support the development of concept studies have been limited to DND/CAF unclassified requirements and priorities at this time.

The CAF has an enduring mandate to defend Canada and North America, and contribute to an effective deterrent to threats. Concurrently, CAF must maintain the capability to reach and respond to a range of domestic and international threats and emergencies. Space systems and access are critical for surveillance to the CAF. Consequently, the CAF is dependent on the full spectrum of capabilities derived from space assets and relies on space-enabled capabilities to conduct operations at home and abroad.

2.2 Scope

DG Space requires a detailed engineering and costing analysis to be conducted on a space-based surveillance system data exploitation design concept that best meet its requirements, as described in its SBS-RD. Additional analysis may also be required.

3.0 Tasks

3.1 Engineering & costing analysis of a data exploitation design concept

The contractor must conduct a detailed review of the SBS-RD and develop an engineering and costing analysis of data exploitation design concepts. The proposed design concepts must address all of the priority 1 and 2 requirements, and at a minimum, 50% of the remaining priorities 3-5 requirements listed in the SBS-RD. A summary of these requirements and priorities are listed in Appendix B.

The constellation design concept is required to include technology that is or will be at Technology Readiness Level (TRL) 7-9 in 3-5 years, as defined in Appendix C.

The engineering and costing analysis is to be written in accordance with the template in Appendix A and must at minimum include the following:



- a. Communications links (frequency, bandwidth if appropriate);
- b. Ground segment technology and configuration;
- c. Collection, data handling;
- d. Processing, Exploitation and Dissemination (PED);
- e. Data Archiving, retrieval and storage;
- f. Cross domain connectivity;
- g. Identification of any requirements that cannot be met;
- h. Identification of all potential risks with their associated mitigation strategy, including the impact statement and probability of occurrence; and
- i. A detailed options analysis of the proposed exploitation concept including scalable cost estimates. The cost estimates of the proposed design concepts must contain a detailed description of the assumptions made in establishing the Work Breakdown Structure level 2 cost estimates. The estimates must clearly illustrate the cost-benefit analysis of the recommended design options and describe the trade-offs made with their associated costing.

3.2 Optional Professional services

The Contractor may be required to perform further analysis of the deliverables. These activities may include but are not limited to:

- e. Feasibility/trade-off studies of processing, exploitation, and dissemination techniques;
- f. Communication links analysis;
- g. Data and archive requirements; and
- h. Further cost and requirements scalability analysis.

4.0 Deliverables

4.1 Engineering and costing analysis of a data exploitation design concept

4.1.1 Written Engineering and costing analysis report as per Section 3.1 of this SOW.

4.1.2 Presentation of the engineering and costing analysis to DND/CAF stakeholders.

4.1.3 Multi-media animation file which will visually demonstrate how the proposed concepts would operate. The animation must be free of all Contractor logos.

4.2 Optional professional services

Deliverables for optional professional services will be specified at time of Task Authorization.

5.0 Format of Deliverables

All deliverables must be submitted in electronic format using MS Office Suite software and written in English.

Presentation material should be in Power Point format. Documents provided in Adobe PDF format must not be protected against copy of text and figures.



All simulation scenarios that are included (e.g. with STK) must be delivered in CD-ROM, DVD-ROM, or transferred by FTP (through arrangement with the TA).

6.0 Schedule of Deliverables

Reports and Documents	Due Date
Written Engineering and costing analysis report	20 March 20
Presentation of the engineering and costing analysis	Prior to 31 March 20

6.1 Schedule of Meetings

Meeting	Date	Location
Kick-Off	Contract Award + 1 week	DND/CAF (preferable) or telcon
Interim Review	Contract Award + 5 weeks	DND/CAF (preferable) or telcon

7.0 Acceptance

All deliverables under this SOW must be submitted to the Technical Authority for review and approval.

8.0 Work Location

All work shall be conducted at the Contractor's place of business. The presentation will take place at National Defence Headquarters, located at 101 Colonel By Drive, Ottawa, ON, or at 3500 Carling Avenue, Ottawa, ON. The time and place will be specified by the Technical Authority.

8.1 Travel

Travel will not be reimbursed under this contract.

9.0 Applicable Documents

The following documents provide additional information and guidelines that either may clarify the contents or are pertinent to the requirement of this SOW.

RD No.	Document Number	Document Title	Rev. No.	Date
RD-2.		DND/CAF Space-Based Surveillance Requirements Document	2	October 2019



Appendix A. General Preparation Instructions for the Space System Engineering Analysis

General Instructions

Electronic Copies

Electronic documents must be prepared using the most appropriate tool (Microsoft Word, Excel, MS Project, etc.); released versions must be delivered in electronic format and may be in PDF. Documents must be delivered via e-mail, if larger than 10 Mb direct transfer (FTP) is preferred. For direct transfer, a notification of the document's readiness and location on a contractor repository must be sent to the Technical Authority.

Electronic copies of text documents must be formatted for printing on 8.5" x 11" paper. The electronic file name and the identification number written on the document itself must have the following format:

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Where:

YEAR-MONTH-DAY: Date Tracking Number
PSCD: The four letter acronym of this SOW
CIE: Name of the Company (no space, no hyphen)
Contract Number: For example: _9F028-07-4200-03

Emails are to contain the SOW acronym or equivalent identifier in the "Subject" line. If necessary to send hard copy and media they are to be addressed to:

Director Space Requirements/ ISR Program Manager
Director General Space
National Defence Headquarters
101 Colonel By Drive
Ottawa, ON. K1A 0K2

Enclosed documents must be labelled with the following information:

Company Name
Document Title
Document Number and Revision Number
SOW Number
Contract Number
Document Numbers

All pages must contain the Document Number at the top of the page. Document Numbers must include revision status and volume identification as applicable.

Document Structure and Content

Except as otherwise specified, all documents must have the overall structure as follows:

Cover/Title Page;
Table of Contents;
Scope;



Applicable and Reference Documents;
Body of Document; and
Annexes

Cover/Title Page

The title page must contain the following information:

Document Number and date
Revision indicator / date of Rev.
Document Title
SOW Name
Contract Number
Prepared for: Director Space Requirements
Prepared by: Contractor name, CAGE Code, address, and phone number
© HER MAJESTY THE QUEEN IN RIGHT OF CANADA [YEAR]

Table of Contents

The table of contents must list the title and page number of each titled paragraph and subparagraph, at least down to the third level inclusive. The table of contents must then list the title and page number of each heading, figure, table, and annex, in that order.

Scope

This section must provide a brief overview of the Area of Interest(s) to which the document applies, and a summary of the content provided.

Applicable and Reference Documents

This section must list by Document Number and title, all applicable and reference documents. This section must also identify the source of all applicable and reference documents and the revision indicator.

Executive Summary

Body of Document

The body of the document must be prepared in accordance with the above instructions and report on the following at a minimum. Each section begins with a new page.

Data Exploitation Concept

Insert Contractor reports or deliverables

Conclusion

Overall recommendation of an option based on the results described above.

Annexes

Annexes and appendices may be used to provide information published separately for convenience of organizing the document.



Appendix B. Matrix of requirements and priorities

Requirements Organized by Priority:

Req Number/ Title	Priority
PRIORITY 1	
[Req 100.1] Compliance with GC Directives & Policies	1
[Req 100.2] Ground Infrastructure & Network Security	1
[Req 100.3] Archive	1
[Req 100.5] Secure Up/Downlinks	1
[Req 100.6] Security & Privacy of Canadians	1
[Req 100.8] Sharing with OGD, Allies and Coalition Partners	1
[Req 200.2] SBS System Manoeuvrability	1
[Req 200.6] Geo-Locating Accuracy	1
[Req 200.8] Optimized Downlink and Ground Stations Contact Management	1
[Req 200.10] Sharing of Imagery & Value Added Products	1
[Req 200.12] Onboard Processing with NRT Ship Detection	1
[Req 200.23] Global Access	1
[Req 200.24] Canada's Land Mass & Arctic	1
[Req 200.25] Multi-Role Operational Surveillance Capability	1
[Req 200.28] Archive – Classified and Unclassified	1
[Req 300.6] Emergency Override Priority	1
[Req 300.7] Accept Low-Latency Ally Collection Request	1
[Req 300.9] SAR Imagery of Land Regions	1
[Req 300.10] AWAS Coverage of North American and Arctic AOI's	1
[Req 300.13] Produce High-Resolution Imagery - Narrow Field of View	1
[Req 300.14] Produce High-Resolution Imagery – Wide Field of View	1
[Req 300.18] Ship Detection of Naval TG Surveillance Zones	1
[Req 300.19] Global Latency	1
[Req 300.21] EO & Other Spectral Imagery	1
[Req 300.25] UNCLAS ELINT for RMP	1
[Req 300.28] Ship/Ice Discrimination	1
[Req 400.1] Efficient Data Processing, Exploitation, and Dissemination (PED)	1
[Req 400.4] Change Detection	1
[Req 400.8] Velocity Detection	1
[Req 400.14] Vessel Identification and Characterization	1
PRIORITY 2	
[Req 100.4] WoG Accessibility	2
[Req 200.1] Security & Protection Measures	2
[Req 200.3] System Enduring Capability	2
[Req 200.4] Space Mission Life	2
[Req 200.5] Ground Segment Life	2
[Req 200.15] Cross-Domain Connectivity	2
[Req 200.17] Data Format	2
[Req 200.18] Integration of Technology	2
[Req 200.19] System-of-Systems Capability	2
[Req 200.20] Direct Satellite Tasking by a Naval Task Group	2
[Req 200.22] 24/7 Operations	2
[Req 200.27] Restricted Visibility	2
[Req 300.1] Collection Management and Planning	2
[Req 300.2] Commercial GEOINT Intelligence Systems	2



[Req 300.3] Integration of Data Acquisitions by Other SBS Systems	2
[Req 300.4] Queuing and Cross-Queuing: Automated or Semi-Automated Generation of New Collection Requests	2
[Req 300.8] Integrate METOC Forecasting in Overhead Collection Planning	2
[Req 300.11] Contiguous SAR Swath Coverage	2
[Req 300.15] AWAS coverage of DND's Global Maritime Surveillance AOIs	2
[Req 300.16] Beam Modes & Resolutions	2
[Req 300.20] Low-Latency Ordering	2
[Req 300.22] Digital Elevation Model	2
[Req 300.23] CMT Coverage	2
[Req 300.24] CMT Duty Cycle	2
[Req 300.27] Material Discrimination and Identification	2
[Req 300.29] Improved Charting of Navigation Hazards	2
[Req 400.3] Characterization of Snow	2
[Req 400.6] SAR Properties, Imagery and RF Emissions Analysis	2
[Req 400.7] Vessel Detection Parameters	2
[Req 400.10] Ship Wake Analysis	2
[Req 400.11] Ship Detection in all Atmospheric Conditions	2
[Req 400.12] Defeat Camouflage, Concealment and Deception	2
[Req 400.15] 3D Extraction	2
[Req 400.16] Exploit Transmission Information	2
[Req 400.18] AIS Detection Performance	2
[Req 400.19] Association Latency	2
[Req 400.20] Concurrent Surveillance	2
[Req 400.22] SBS Surveillance with Automated Detections	2
[Req 400.24] Roads and Runways Activity Assessment	2
[Req 400.25] Static Maritime Facilities	2
[Req 400.26] Ship Detection Close to Land	2
[Req 400.28] Overall Training	2
[Req 400.29] Tailored Training	2
PRIORITY 3	
[Req 100.7] Data Plan	3
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[Req 200.13] Low-Latency Cross-Queuing	3
[Req 200.14] Data Analysis Tools	3
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[Req 200.21] Tactical User or Theatre Ordering Capability	3
[Req 200.26] Accessibility of Data Archive	3
[Req 200.29] Archive Life	3
[Req 300.5] Product Ordering & Delivery	3
[Req 300.26] Advanced Capabilities	3
[Req 400.2] SBS System Ground-Based Components	3
[Req 400.5] Real-time Motion of Objects	3
[Req 400.9] Sea State and Ocean Current Detection	3
[Req 400.13] Chemical Biological Radiation Nuclear and explosives (CBRNe)	3
[Req 400.17] AIS & CMT Geo-Location Accuracy	3
[Req 400.21] SOM	3
[Req 400.23] Big Data Exploitation	3
[Req 400.27] Behavioural Information	3



PRIORITY 4	
[Req 200.9] Access the SBS Asset via Line-of-sight Communications	4
[Req 200.30] Data Archive Connectivity	4
[Req 300.12] Capacity for 50% Growth of Global AOIs	4
[Req 300.17] Rapid Beam Mode Switching	4
[Req 300.30] Receiving Tactical Orders in Theatre	4
PRIORITY 5	
[Req 500.1] R&D Community Access to Operational Data	5
[Req 500.2] Signature Library	5



Appendix C. Technology Readiness Levels

Source: ISED website 10 April 2019, <https://www.ic.gc.ca/eic/site/080.nsf/eng/00002.html>

Level 1: Basic principles of concept are observed and reported. Scientific research begins to be translated into applied research and development. Activities might include paper studies of a technology's basic properties.

Level 2: Technology concept and/or application formulated. Invention begins. Once basic principles are observed, practical applications can be invented. Activities are limited to analytic studies.

Level 3: Analytical and experimental critical function and/or proof of concept. Active research and development is initiated. This includes analytical studies and/or laboratory studies. Activities might include components that are not yet integrated or representative.

Level 4: Component and/or validation in a laboratory environment. Basic technological components are integrated to establish that they will work together. Activities include integration of "ad hoc" hardware in the laboratory.

Level 5: Component and/or validation in a simulated environment. The basic technological components are integrated for testing in a simulated environment. Activities include laboratory integration of components.

Level 6: System/subsystem model or prototype demonstration in a simulated environment. A model or prototype that represents a near desired configuration. Activities include testing in a simulated operational environment or laboratory.

Level 7: Prototype ready for demonstration in an appropriate operational environment. Prototype at planned operational level and is ready for demonstration in an operational environment. Activities include prototype field testing.

Level 8: Actual technology completed and qualified through tests and demonstrations. Technology has been proven to work in its final form and under expected conditions. Activities include developmental testing and evaluation of whether it will meet operational requirements.

Level 9: Actual technology proven through successful deployment in an operational setting. Actual application of the technology in its final form and under real-life conditions, such as those encountered in operational tests and evaluations. Activities include using the innovation under operational conditions.



Appendix D. Acronyms and Abbreviations

AWAS	Active Wide-Area-Surveillance
AOI	Area of Interest
CAF	Canadian Armed Forces
DND	Department of National Defence
EO	Earth Observation
FTP	File Transfer Protocol
ISR	Intelligence, Surveillance and Reconnaissance
NESZ	Noise Equivalent Sigma Zero
PED	Processing, Exploitation, Dissemination
RFP	Request for Proposal
SAR	Synthetic Aperture Radar
SBS-RD	Space-Based Surveillance Requirements Document
SOW	Statement Of Work
STK	Systems Toolkit
TA	Technical Authority
TCPED	Tasking, Collection, Processing, Exploitation, Dissemination
TRL	Technology Readiness Level
TT&C	Tracking, Telemetry & Command



ANNEX “A-3”

STATEMENT OF WORK

STREAM 3 – ALTERNATE MISSION CONCEPT



1.0 Requirement

The Department of National Defence and Canadian Armed Forces' (DND/CAF) Director General Space (DG Space) requires an engineering and costing analysis to be conducted on a space-based surveillance system alternate mission type (non-SAR) design concept to best meet its requirements, as described in its draft Space-Based Surveillance Requirements document (SBS-RD) version 2.0.

2.0 Background and Scope

2.1 Background

This Statement of Work (SOW) is in support of Canada's Whole-of-Government approach to delivering next-generation Earth Observation capabilities. The requirements listed to support the development of concept studies have been limited to DND/CAF unclassified requirements and priorities at this time.

The CAF has an enduring mandate to defend Canada and North America, and contribute to an effective deterrent to threats and incidents. Concurrently, CAF must maintain the capability to reach and respond to a range of domestic and international threats and emergencies. Space systems and access are critical for surveillance to the CAF. Consequently, the CAF is dependent on the full spectrum of capabilities derived from space assets and relies on space-enabled capabilities to conduct operations at home and abroad.

2.2 Scope

DG Space requires a detailed engineering and costing analysis to be conducted on a space-based surveillance system alternate mission type (non-SAR) design concept that best meet its requirements, as described in its SBS-RD. Additional analysis may also be required.

3.0 Tasks

3.1 Engineering and costing analysis of an alternate mission design concept

The contractor must conduct a detailed review of the SBS-RD and develop an engineering and costing analysis of alternate mission type (non-SAR) design concepts. The proposed design concepts must address all of the priority 1 and 2 requirements, and at a minimum, 50% of the remaining priorities 3-5 requirements listed in the SBS-RD. The exception to these requirements are the revisit rates listed in Annex A and B of the SBS-RD; a reduced revisit rate of weekly should be used instead. A summary of these requirements and priorities are listed in Appendix B to Annex A-3.

The design concept is required to include technology that is or will be at Technology Readiness Level (TRL) 7-9 in 3-5 years, as defined in Appendix C to Annex A-3.

The engineering and costing analysis is to be written in accordance with the template in Appendix A and must at minimum include the following:

- a. Tasking, Telemetry, and Communications requirements;



- b. Communications links (frequency, bandwidth);
- c. Constellation composition, size and orbit(s);
- d. Recommended sensors/ sensor types, secondary payload, duty cycle, bus, frequency band(s);
- e. Detailed analysis of the sensor parameters (swath, resolution, Noise Equivalent Sigma Zero (NESZ), ambiguity, bandwidth, scene size);
- f. Technology, primary and secondary payload(s) and operating parameters across the space-based surveillance system;
- g. Identification of any possible non-compliance or requirements that cannot be met;
- h. Identification of all potential risks with their associated mitigation strategy, including the impact statement and probability of occurrence; and
- i. A detailed options analysis of proposed constellation design concepts including scalable cost estimates of multiple revisit times and resolutions. The cost estimates of the proposed constellation design concepts must contain a detailed description of the assumptions made in establishing the Work Breakdown Structure level 2 cost estimates. The estimates must clearly illustrate the cost-benefit analysis of the recommended design options and describe the trade-offs made with their associated costing.

3.2 Optional Professional services

The Contractor may be required to perform further analysis of the deliverables. These activities may include but are not limited to:

- i. Feasibility/trade-off studies of mission concepts;
- j. Payload compatibility assessments;
- k. EO/IR capability analysis; and
- l. Further cost and requirements scalability analysis.

4.0 Deliverables

4.1 Engineering and costing analysis of an alternate mission type (non-SAR) design concept

4.1.1 Written Engineering and costing analysis report as per Section 3.1 of this SOW.

4.1.2 Presentation of the engineering and costing analysis to DND/CAF stakeholders.

4.1.3 Multi-media animation file which will visually demonstrate how the proposed concepts would operate. The animation must be free of all Contractor logos.

4.2 Optional professional services

Deliverables for ad-hoc professional services will be specified at time of Task Authorization.

5.0 Format of Deliverables

All deliverables must be submitted in electronic format using MS Office Suite software and written in English.



Documentation, reporting and other deliverables must be according to instructions provided in Annex A. Presentation material should be in Power Point format. Documents provided in Adobe PDF format must not be protected against copy of text and figures.

All simulation scenarios that are included (e.g. with STK) must be delivered in CD-ROM, DVD-ROM, or transferred by FTP (through arrangement with the TA).

6.0 Schedule of Deliverables

Reports and Documents	Due Date
Written Engineering and costing analysis report	20 March 20
Presentation of the engineering and costing analysis	Prior to 31 March 20

6.1 Schedule of Meetings

Meeting	Date	Location
Kick-Off	Contract Award + 1 week	DND/CAF (preferable) or telcon
Interim Review	Contract Award + 5 weeks	DND/CAF (preferable) or telcon

7.0 Acceptance

All deliverables under this SOW must be submitted to the Technical Authority for review and approval.

8.0 Work Location

All work shall be conducted at the contractor's place of business. The final presentation will take place at National Defence Headquarters, located at 101 Colonel By Drive, Ottawa, ON, or at 3500 Carling Avenue, Ottawa, ON. The time and place will be specified by the Technical Authority.

8.1 Travel

Travel will not be reimbursed under this contract.

9.0 Applicable Documents

The following documents provide additional information and guidelines that either may clarify the contents or are pertinent to the requirement of this SOW.

RD No.	Document Number	Document Title	Rev. No.	Date
RD-3.		DND/CAF Space-Based Surveillance Requirements Document	2	October 2019



Appendix A to Annex A-3. General Preparation Instructions for the Space System Engineering Analysis

General Instructions

Electronic Copies

Electronic documents must be prepared using the most appropriate tool (Microsoft Word, Excel, MS Project, etc.); released versions must be delivered in electronic format and may be in PDF. Documents must be delivered via e-mail, if larger than 10 Mb direct transfer (FTP) is preferred. For direct transfer, a notification of the document's readiness and location on a contractor repository must be sent to the Technical Authority.

Electronic copies of text documents must be formatted for printing on 8.5" x 11" paper. The electronic file name and the identification number written on the document itself must have the following format:

YYYY-MM-DD_PSCD-CIE_ContractNumber_short title

Where:

YEAR-MONTH-DAY: Date Tracking Number
PSCD: The four letter acronym of this SOW
CIE: Name of the Company (no space, no hyphen)
Contract Number: For example: _9F028-07-4200-03

Emails are to contain the SOW acronym or equivalent identifier in the "Subject" line. If necessary to send hard copy and media they are to be addressed to:

Director Space Requirements/ ISR Program Manager
Director General Space
National Defence Headquarters
101 Colonel By Drive
Ottawa, ON. K1A 0K2

Enclosed documents must be labelled with the following information:

Company Name
Document Title
Document Number and Revision Number
SOW Number
Contract Number
Document Numbers

All pages must contain the Document Number at the top of the page. Document Numbers must include revision status and volume identification as applicable.

Document Structure and Content

Except as otherwise specified, all documents must have the overall structure as follows:

Cover/Title Page;
Table of Contents;



Scope;
Applicable and Reference Documents;
Body of Document; and
Annexes

Cover/Title Page

The title page must contain the following information:

Document Number and date
Revision indicator / date of Rev.
Document Title
SOW Name
Contract Number
Prepared for: Director Space Requirements
Prepared by: Contractor name, CAGE Code, address, and phone number
© HER MAJESTY THE QUEEN IN RIGHT OF CANADA [YEAR]

Table of Contents

The table of contents must list the title and page number of each titled paragraph and subparagraph, at least down to the third level inclusive. The table of contents must then list the title and page number of each heading, figure, table, and annex, in that order.

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This section must provide a brief overview of the Area of Interest(s) to which the document applies, and a summary of the content provided.

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This section must list by Document Number and title, all applicable and reference documents. This section must also identify the source of all applicable and reference documents and the revision indicator.

Executive Summary

Body of Document

The body of the document must be prepared in accordance with the above instructions and report on the following at a minimum. Each section begins with a new page.

Alternate Mission Type design concept

Insert Contractor reports or deliverables.

Conclusion

Overall recommendation of an option based on the results described above.

Annexes

Annexes and appendices may be used to provide information published separately for convenience of organizing the document.



Appendix B to Annex A-3. Matrix of requirements and priorities

Requirements Organized by Priority:

Req Number/ Title	Priority
PRIORITY 1	
[Req 100.1] Compliance with GC Directives & Policies	1
[Req 100.2] Ground Infrastructure & Network Security	1
[Req 100.3] Archive	1
[Req 100.5] Secure Up/Downlinks	1
[Req 100.6] Security & Privacy of Canadians	1
[Req 100.8] Sharing with OGD, Allies and Coalition Partners	1
[Req 200.2] SBS System Manoeuvrability	1
[Req 200.6] Geo-Locating Accuracy	1
[Req 200.8] Optimized Downlink and Ground Stations Contact Management	1
[Req 200.10] Sharing of Imagery & Value Added Products	1
[Req 200.12] Onboard Processing with NRT Ship Detection	1
[Req 200.23] Global Access	1
[Req 200.24] Canada's Land Mass & Arctic	1
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[Req 200.28] Archive – Classified and Unclassified	1
[Req 300.6] Emergency Override Priority	1
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[Req 300.9] SAR Imagery of Land Regions	1
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[Req 300.21] EO & Other Spectral Imagery	1
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[Req 400.4] Change Detection	1
[Req 400.8] Velocity Detection	1
[Req 400.14] Vessel Identification and Characterization	1
PRIORITY 2	
[Req 100.4] WoG Accessibility	2
[Req 200.1] Security & Protection Measures	2
[Req 200.3] System Enduring Capability	2
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[Req 300.27] Material Discrimination and Identification	2
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[Req 400.21] SOM	3
[Req 400.23] Big Data Exploitation	3
[Req 400.27] Behavioural Information	3



PRIORITY 4	
[Req 200.9] Access the SBS Asset via Line-of-sight Communications	4
[Req 200.30] Data Archive Connectivity	4
[Req 300.12] Capacity for 50% Growth of Global AOIs	4
[Req 300.17] Rapid Beam Mode Switching	4
[Req 300.30] Receiving Tactical Orders in Theatre	4
PRIORITY 5	
[Req 500.1] R&D Community Access to Operational Data	5
[Req 500.2] Signature Library	5



Appendix C to Annex A-3. Technology Readiness Levels

Source: ISED website 10 April 2019, <https://www.ic.gc.ca/eic/site/080.nsf/eng/00002.html>

Level 1: Basic principles of concept are observed and reported. Scientific research begins to be translated into applied research and development. Activities might include paper studies of a technology's basic properties.

Level 2: Technology concept and/or application formulated. Invention begins. Once basic principles are observed, practical applications can be invented. Activities are limited to analytic studies.

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Level 6: System/subsystem model or prototype demonstration in a simulated environment. A model or prototype that represents a near desired configuration. Activities include testing in a simulated operational environment or laboratory.

Level 7: Prototype ready for demonstration in an appropriate operational environment. Prototype at planned operational level and is ready for demonstration in an operational environment. Activities include prototype field testing.

Level 8: Actual technology completed and qualified through tests and demonstrations. Technology has been proven to work in its final form and under expected conditions. Activities include developmental testing and evaluation of whether it will meet operational requirements.

Level 9: Actual technology proven through successful deployment in an operational setting. Actual application of the technology in its final form and under real-life conditions, such as those encountered in operational tests and evaluations. Activities include using the innovation under operational conditions.



Appendix D to Annex A-3. Acronyms and Abbreviations

AWAS	Active Wide-Area-Surveillance
AOI	Area of Interest
CAF	Canadian Armed Forces
DND	Department of National Defence
EO	Earth Observation
FTP	File Transfer Protocol
ISR	Intelligence, Surveillance and Reconnaissance
NESZ	Noise Equivalent Sigma Zero
PED	Processing, Exploitation, Dissemination
RFP	Request for Proposal
SAR	Synthetic Aperture Radar
SBS-RD	Space-Based Surveillance Requirements Document
SOW	Statement Of Work
STK	Systems Toolkit
TA	Technical Authority
TCPED	Tasking, Collection, Processing, Exploitation, Dissemination
TRL	Technology Readiness Level
TT&C	Tracking, Telemetry & Command
WBS	Work Breakdown Structure



**Appendix A to Annex A -
Task Authorization Form**



**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 TBD	<p>TO THE CONTRACTOR</p> <p>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.</p> <p>À L'ENTREPRENEUR</p> <p>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.</p> <p>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.</p>	
Delivery location – Expédiez à		
Delivery/Completion date – Date de livraison/d'achèvement	<p>_____ Date _____</p> <p>for the Department of National Defence pour le ministère de la Défense nationale</p>	
Contract item no. N° d'article du contrat	Services	Cost Prix
		GST/HST TPS/TVH
		Total
<p>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.</p> <p>NE S'APPLIQUE QU'ÀUX 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.</p>		
<p>_____</p> <p>for the Department of Public Works and Government Services pour le ministère des Travaux publics et services gouvernementaux</p>		

DND 626 (01-05)

Design: Forms Management 993-4050
Conception : Gestion des formulaires 993-4062



APPENDIX B TO ANNEX A

CERTIFICATION AT THE TA STAGE

The following Certifications are to be used, as applicable. If they apply, they must be signed and attached to the Contractor's quotation when it is submitted to Canada.

1. CERTIFICATION OF EDUCATION AND EXPERIENCE

The Contractor certifies that all the information provided in the résumés and supporting material proposed for completing the subject work, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Contractor to be true and accurate.

Furthermore, the Contractor warrants that every individual proposed by the Contractor for the requirement is capable of performing the Work described in the Task Authorization.

Print name of authorized individual & sign above _____ Date _____

2. CERTIFICATION OF AVAILABILITY OF PERSONNEL

The Contractor certifies that, should it be authorized to provide services under this Task Authorization, the persons proposed in the quotation will be available to commence performance of the work within a reasonable time from the date of issuance of the valid Task Authorization, or within the time specified in the TA Form, and will remain available to perform the work in relation to the fulfillment of the requirement.

Print name of authorized individual & sign above _____ Date _____

3. CERTIFICATION OF STATUS OF PERSONNEL

If the Contractor has proposed any individual who is not an employee of the Contractor, the Contractor certifies that it has permission from that individual to propose his/her services in relation to the Work to be performed under this TA and to submit his/her résumé to Canada. At any time during the Contract Period the Contractor must, upon request from the Contracting Authority, provide the written confirmation, signed by the individual, of the permission that was given to the Contractor of his/her availability. Failure to comply with the request may result in a default under the Contract in accordance with the General Conditions.

Print name of authorized individual & sign above _____ Date _____



4. CERTIFICATION OF LANGUAGE - English

The Contractor certifies that the proposed resource(s) in response to this draft Task Authorization is/are fluent in English. The individual(s) proposed must be able to communicate orally and in writing in English without any assistance and with minimal errors.

Print name of authorized individual & sign above _____ Date _____



ANNEX “B”

BASIS OF PAYMENT

For optional professional services work under section 3.2 of the Statement of Work, the Contractor shall be paid per the following basis of payment:

Item number	Description	Firm all-inclusive Per diem (GST/HST Excluded)
1	All-inclusive Firm per diem price for the total of resources performing the work under Section 3.1 of the Statement of Work Option Period 1 (1 April to 30 September 2020)	\$ (price to be inserted at contract award)
2	All-inclusive Firm per diem price for the total of resources performing the work under Section 3.1 of the Statement of Work Option Period 2 (1 October 2020 to 31 March 2021)	\$ (price to be inserted at contract award)

For the purpose of this Contract, a day is defined as 7.5 hours of work, exclusive of meal breaks. Payment will be made for days actually worked, with no provision for annual leave, statutory holidays and sick leave. If time worked is more or less than a day, the all-inclusive fixed daily rate must be prorated to reflect the actual time worked in accordance with the following formula:

$$(\text{Hours worked} \times \text{applicable firm all-inclusive per diem rate}) \div 7.5 \text{ hours}$$

No overtime charges will be authorized under the Contract. All time worked will be compensated according to paragraph above.



ANNEX "C" - SECURITY REQUIREMENTS CHECK LIST



Contract Number / Numéro du contrat C.001438
Security Classification / Classification de sécurité UNCLASSIFIED

**SECURITY REQUIREMENTS CHECK LIST (SRCL)
LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)**

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE			
1. Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine DND		2. Branch or Directorate / Direction générale ou Direction RCAF/DG Space/DSR	
3. a) Subcontract Number / Numéro du contrat de sous-traitance		3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant	
4. Brief Description of Work / Brève description du travail Request for mission concept studies based off of DG Space Space-based Requirements Document			
5. a) Will the supplier require access to Controlled Goods? / Le fournisseur aura-t-il accès à des marchandises contrôlées?		<input checked="" type="checkbox"/> No / Non	<input type="checkbox"/> Yes / Oui
5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? / Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques?		<input checked="" type="checkbox"/> No / Non	<input type="checkbox"/> Yes / Oui
6. Indicate the type of access required / Indiquer le type d'accès requis			
6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? / Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? (Specify the level of access using the chart in Question 7. c) / (Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c)		<input checked="" type="checkbox"/> No / Non	<input type="checkbox"/> Yes / Oui
6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. / Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé.		<input type="checkbox"/> No / Non	<input checked="" type="checkbox"/> Yes / Oui
6. c) Is this a commercial courier or delivery requirement with no overnight storage? / S'agit-il d'un contrat de messagerie ou de livraison commerciale sans entreposage de nuit?		<input checked="" type="checkbox"/> No / Non	<input type="checkbox"/> Yes / Oui
7. a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès			
Canada	NATO / OTAN	Foreign / Étranger	
7. b) Release restrictions / Restrictions relatives à la diffusion	All NATO countries / Tous les pays de l'OTAN	No release restrictions / Aucune restriction relative à la diffusion	
No release restrictions / Aucune restriction relative à la diffusion			
Not releasable / À ne pas diffuser			
Restricted to: / Limité à:	Restricted to: / Limité à:	Restricted to: / Limité à:	
Specify country(ies): / Préciser le(s) pays:	Specify country(ies): / Préciser le(s) pays:	Specify country(ies): / Préciser le(s) pays:	
7. c) Level of information / Niveau d'information			
PROTECTED A / PROTÉGÉ A	NATO UNCLASSIFIED / NATO NON CLASSIFIÉ	PROTECTED A / PROTÉGÉ A	
PROTECTED B / PROTÉGÉ B	NATO RESTRICTED / NATO DIFFUSION RESTREINTE	PROTECTED B / PROTÉGÉ B	
PROTECTED C / PROTÉGÉ C	NATO CONFIDENTIAL / NATO CONFIDENTIEL	PROTECTED C / PROTÉGÉ C	
CONFIDENTIAL / CONFIDENTIEL	NATO SECRET / NATO SECRET	CONFIDENTIAL / CONFIDENTIEL	
SECRET / SECRET	COSMIC TOP SECRET / COSMIC TRÈS SECRET	SECRET / SECRET	
TOP SECRET / TRÈS SECRET		TOP SECRET / TRÈS SECRET	
TOP SECRET (SIGINT) / TRÈS SECRET (SIGINT)		TOP SECRET (SIGINT) / TRÈS SECRET (SIGINT)	

TBS/SCT 350-103(2004/12)

Security Classification / Classification de sécurité
UNCLASSIFIED





Contract Number / Numéro du contrat C.001438
Security Classification / Classification de sécurité UNCLASSIFIED

PART A (continued) / PARTIE A (suite)

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets?
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS? No / Yes
Non / Oui

If Yes, indicate the level of sensitivity:
Dans l'affirmative, indiquer le niveau de sensibilité :

9. Will the supplier require access to extremely sensitive INFOSEC information or assets?
Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate? No / Yes
Non / Oui

Short Title(s) of material / Titre(s) abrégé(s) du matériel :
Document Number / Numéro du document :

PART B - PERSONNEL (SUPPLIER) / PARTIE B - PERSONNEL (FOURNISSEUR)

10. a) Personnel security screening level required / Niveau de contrôle de la sécurité du personnel requis

<input checked="" type="checkbox"/> RELIABILITY STATUS COTE DE FIABILITÉ	CONFIDENTIAL CONFIDENTIEL	<input checked="" type="checkbox"/> SECRET SECRET	TOP SECRET TRÈS SECRET
TOP SECRET- SIGINT TRÈS SECRET - SIGINT	NATO CONFIDENTIAL NATO CONFIDENTIEL	NATO SECRET NATO SECRET	COSMIC TOP SECRET COSMIC TRÈS SECRET
SITE ACCESS ACCÈS AUX EMBLEMES			

Special comments:
Commentaires spéciaux :

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided.
REMARQUE: Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni.

10. b) May unscreened personnel be used for portions of the work?
Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail? No / Yes
Non / Oui

If Yes, will unscreened personnel be escorted?
Dans l'affirmative, le personnel en question sera-t-il escorté? On DND premises, unscreened pers. may only access public/reception zones No / Yes
Non / Oui sm

PART C - SAFEGUARDS (SUPPLIER) / PARTIE C - MESURES DE PROTECTION (FOURNISSEUR)

INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS

11. a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises?
Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS? No / Yes
Non / Oui

11. b) Will the supplier be required to safeguard COMSEC information or assets?
Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC? No / Yes
Non / Oui

PRODUCTION

11. c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises?
Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ? No / Yes
Non / Oui

INFORMATION TECHNOLOGY (IT) MEDIA / SUPPORT RELATIF À LA TECHNOLOGIE DE L'INFORMATION (TI)

11. d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data?
Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS? No / Yes
Non / Oui

11. e) Will there be an electronic link between the supplier's IT systems and the government department or agency?
Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale? No / Yes
Non / Oui



Contract Number / Numéro du contrat C.001438
Security Classification / Classification de sécurité UNCLASSIFIED

PART C - (continued) / PARTIE C - (suite)

For users completing the form manually use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises.

Les utilisateurs qui remplissent le formulaire manuellement doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur.

For users completing the form online (via the Internet), the summary chart is automatically populated by your responses to previous questions.

Dans le cas des utilisateurs qui remplissent le formulaire en ligne (par Internet), les réponses aux questions précédentes sont automatiquement saisies dans le tableau récapitulatif.

SUMMARY CHART / TABLEAU RÉCAPITULATIF

Category Catégorie	PROTECTED PROTÉGÉ			CLASSIFIED CLASSIFIÉ		NATO				COMSEC							
	A	B	C	CONFIDENTIAL	SECRET	TOP SECRET	NATO RESTRICTED	NATO CONFIDENTIAL	NATO SECRET	COSMIC TOP SECRET	PROTECTED PROTÉGÉ			CONFIDENTIAL	SECRET	TOP SECRET	
				CONFIDENTIEL		TRES SECRET	NATO DIFFUSION RESTREINTE	NATO CONFIDENTIEL		COSMIC TRÉS SECRET	A	B	C	CONFIDENTIEL		TRES SECRET	
Information / Assets Renseignements / Biens Production																	
IT Media / Support TI																	
IT Link / Lien électronique																	

12. a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED?
La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE? No Yes
Non Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification".
Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire.

12. b) Will the documentation attached to this SRCL be PROTECTED and/or CLASSIFIED?
La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE? No Yes
Non Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification" and indicate with attachments (e.g. SECRET with Attachments).
Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire et indiquez qu'il y a des pièces jointes (p. ex. SECRET avec des pièces jointes).



Attachment 3.1

ELECTRONIC PAYMENT INSTRUMENTS

As indicated in Part 3, clause 3.1.2, the Bidder must complete the information requested below, to identify which electronic payment instruments are accepted for the payment of invoices.

The Bidder accepts to be paid by any of the following Electronic Payment Instrument(s):

- VISA Acquisition Card;
- MasterCard Acquisition Card;
- Direct Deposit (Domestic and International);
- Electronic Data Interchange (EDI);
- Wire Transfer (International Only);
- Large Value Transfer System (LVTS) (Over \$25M)



Attachment 3.2 Bidder Submission Form

BID SUBMISSION FORM	
Bidder's full legal name	
Authorized Representative of Bidder for evaluation purposes (e.g., clarifications)	Name
	Title
	Address
	Telephone #
	Fax #
	Email
Bidder's Procurement Business Number (PBN) <i>[see the Standard Instructions 2003]</i>	
Jurisdiction of Contract: Province in Canada the bidder wishes to be the legal jurisdiction applicable to any resulting contract (if other than as specified in solicitation)	
Former Public Servants See the Article in Part 5 of the bid solicitation entitled Former Public Servant Certification for a definition of "Former Public Servant".	Is the Bidder a FPS in receipt of a pension as defined in the bid solicitation? Yes _____ No _____ If yes, provide the information required by the Article in Part 5 entitled "Former Public Servant Certification"
	Is the Bidder a FPS who received a lump sum payment under the terms of a work force reduction program? Yes _____ No _____ If yes, provide the information required by the Article in Part 5 entitled "Former Public Servant Certification"



<p>Federal Contractors Program for Employment Equity (FCP EE) Certification:</p> <p>If the bidder is exempt, please indicate the basis for the exemption to the right. If the bidder does not fall within the exceptions enumerated to the right, the Program requirements do apply and the bidder is required either to:</p> <p>(a) submit to the Department of HRSD form LAB 1168, Certificate of Commitment to Implement Employment Equity, DULY SIGNED; or</p> <p>(b) submit a valid Certificate number confirming its adherence to the FCP-EE.</p> <p>Bidders are requested to include their FCP EE Certification or signed LAB 1168 with their bid; if this information is not provided in the bid, it must be provided upon request by the Contracting Authority during evaluation.</p> <p>For joint ventures, be sure to provide this information for each of the members of the joint venture.</p>	<p>On behalf of the bidder, by signing below, I also confirm that the bidder <i>[check the box that applies]</i>:</p>	
	<p>(a) is not subject to Federal Contractors Program for Employment Equity (FCP-EE), because it has a workforce of less than 100 permanent full or part-time employees in Canada;</p>	
	<p>(b) is not subject to FCP-EE, because it is a regulated employer under the <i>Employment Equity Act</i>;</p>	
	<p>(c) is subject to the requirements of FCP-EE, because it has a workforce of 100 or more permanent full or part-time employees in Canada, but has not previously obtained a certificate number from the Department of Human Resources and Skills Development (HRSD) (having not bid on requirements of \$200,000 or more), in which case a duly signed certificate of commitment is attached; OR</p>	
	<p>(d) is subject to FCP-EE, and has a valid certification number as follows: _____ (and has not been declared an Ineligible Contractor by HRSD).</p>	
<p>Number of FTEs [Bidders are requested to indicate, the total number of full-time-equivalent positions that would be created and maintained by the bidder if it were awarded the Contract. This information is for information purposes only and will not be evaluated.]</p>		
<p>Security Clearance Level of Bidder <i>[include both the level and the date it was granted]</i></p>		
<p>On behalf of the bidder, by signing below, I confirm that I have read the entire bid solicitation including the documents incorporated by reference into the bid solicitation and I certify that:</p> <ol style="list-style-type: none"> 1. The bidder considers itself and its products able to meet all the mandatory requirements described in the bid solicitation; 2. This bid is valid for the period requested in the bid solicitation; 3. All the information provided in the bid is complete, true and accurate; and 4. If the bidder is awarded a contract, it will accept all the terms and conditions set out in the resulting contract clauses included in the bid solicitation. 		
<p>Signature of Authorized Representative of Bidder</p>		



Attachment 4.1: Mandatory and Point-Rated Technical Evaluation Criteria
for **Stream 1 – Constellation Design Concept**

Criteria	Mandatory Criteria	Statement of Compliance and Cross Reference to Proposal	MET	NOT MET
M1	<p>The Bidder must have demonstrated experience performing a Synthetic Aperture Radar (SAR) remote sensing satellite system design concept study within the last five (5) years. The concept study must have assessed all of the following areas:</p> <ul style="list-style-type: none"> 1- Tasking, Telemetry, and Communications requirements; 2- Communications links (frequency, bandwidth); 3- Constellation composition, size and orbit(s); 4- Recommended sensors/sensor types, secondary payload, duty cycle, bus, frequency bands(s); 5- Detailed analysis of the sensor parameters (swath, resolution, Noise Equivalent Sigma Zero (NESZ), ambiguity, bandwidth, scene size); and 6- Detailed cost estimates. <p>To demonstrate compliance, the Bidder must provide details of the concept study using the Project Reference Response Template provided in Attachment 4.7.</p>			
M2	<p>The Bidder must demonstrate that the proposed resource(s) has/have a minimum of twenty (20) years' experience working with Synthetic Aperture Radars (SAR).</p> <p>To demonstrate compliance, the Bidder must provide a resume of each team member and provide details of the project(s), their role(s), dates and duration(s).</p>			



Technical Point Rated Evaluation – Stream 1 – Constellation Design Concept

Criteria	Point-Rated Criteria	Evaluation Factors	Bidder Self-Score	Justification (Cross-reference to resource resume as applicable)
R1	<p>The Bidder should demonstrate that the proposed resource(s) in M2 has/have experience within the last ten (10) years designing SAR payloads.</p> <p>The Bidder should provide a detailed description of the project(s) and the resource(s)' role in the design of SAR payload(s).</p>	<p>15 points = Demonstrated experience designing 3 or more SAR payloads</p> <p>10 points = Demonstrated experience designing 2 SAR payloads</p> <p>5 points = Demonstrated experience designing 1 SAR payload.</p> <p>0 points = No experience</p> <p>MAX Points = 15</p>		
R2	<p>The Bidder should demonstrate that the proposed resource(s) in M2 has/have experience within the last ten (10) years designing satellite systems (including both payload and space vehicle) using SAR as the main payload.</p> <p>The Bidder should provide a detailed description of the project(s) and the team member's role in the design of the satellite system(s) using SAR as the main payload.</p>	<p>15 points = Demonstrated experience designing 3 or more satellite systems using SAR as the main payloads.</p> <p>10 points = Demonstrated experience designing 2 satellite systems using SAR as the main payloads.</p> <p>5 points = Demonstrated experience designing 1 satellite system using SAR as the main payload.</p> <p>0 points = No experience</p> <p>MAX Points = 15</p>		
R3	<p>The Bidder should demonstrate its experience within the last ten (10) years in the completing the following stages for satellite systems which include SAR payloads:</p> <p>1- Design 2- Manufacture</p>	<p>8 points = Demonstrated experience in all 4 stages</p> <p>6 points = Demonstrated experience in 3 stages</p> <p>4 points = Demonstrated experience in 2 stages</p> <p>2 points = Demonstrated experience in 1 stage</p> <p>0 points = no experience</p>		



Criteria	Point-Rated Criteria	Evaluation Factors	Bidder Self-Score	Justification (Cross-reference to resource resume as applicable)
	3- Commission 4- Operation The Bidder should provide details of its experience by using the Project Reference Response Template provided in Attachment 4.7. .	MAX Points = 8		
		Total points (out of 38)		



Attachment 4.2: Financial Proposal for **Stream 1 – Constellation Design Concept**

Table 1 – Firm Requirement

Description	Total Firm price (GST/HST excluded)
Work to be completed per Section 3.1 of the Statement of Work in Annex A-1	\$

Table 2 – Optional Professional Services

Item number	Description	Firm all inclusive Per diem (GST/HST Excluded)
1	<p>Work to be completed per Section 3.2 of the Statement of Work in Annex A-1– Option Period 1 (1 April to 30 September 2020)</p> <p>Bidders are to provide an all-inclusive Firm per diem price for the total of resources that will perform the work under Section 3.1 of the Statement of Work</p>	\$
2	<p>Work to be completed per Section 3.2 of the Statement of Work in Annex A-1– Option Period 2 (1 October 2020 to 31 March 2021)</p> <p>Bidders are to provide an all-inclusive Firm per diem price for the total of resources that will perform the work under Section 3.1 of the Statement of Work</p>	\$
	Total price of optional professional services for evaluation purposes (items 1 + 2)	\$



Total price for financial evaluation (Table 1 and Table 2 totals): \$_____



Attachment 4.3: Mandatory and Point-Rated Technical Evaluation Criteria
for **Stream 2 – Data Exploitation Concept**

Criteria	Mandatory Criteria	Statement of Compliance and Cross Reference to Proposal	MET	NOT MET
M2	<p>The Bidder must have led development of at least one concept study for a Processing, Exploitation and Dissemination (PED) system which uses space-based remote sensing and intelligence data within the last five (5) years. The concept study must have included the following:</p> <ul style="list-style-type: none"> j. Communications links (frequency, bandwidth if appropriate); k. Ground segment technology and configuration; l. Collection, data handling; m. Processing, Exploitation and Dissemination (PED); n. Data Archiving, retrieval and storage; and o. Cross domain connectivity. <p>To demonstrate compliance, the Bidder must provide details of the concept study using the Project Reference Response Template provided in Attachment 4.7.</p>			
M3	<p>The Bidder must demonstrate that the proposed resource(s) has/have a minimum of ten (10) years' experience working with PED systems which use space-based remote sensing and intelligence data.</p> <p>To demonstrate compliance, the Bidder must provide a resume of each team member and provide details of the project(s), their role(s), dates and duration(s).</p>			



Technical Point Rated Requirements for Stream 2 – Data Exploitation Concept

Criteria	Point-Rated Criteria	Evaluation Factors	Bidder Self-Score	Justification (Cross-reference to resource resume as applicable)
R1	<p>The Bidder should demonstrate that the proposed resource(s) in M2 has/have experience within the last five (5) years designing PED systems which use space-based remote sensing and intelligence data.</p> <p>The Bidder should provide a detailed description of the project(s) and the resource(s)' role in the design of PED systems.</p>	<p>15 points = Demonstrated experience designing 3 or more PED systems</p> <p>10 points = Demonstrated experience designing 2 PED systems</p> <p>5 points = Demonstrated experience designing 1 PED system</p> <p>0 points = No experience</p> <p>MAX Points = 15</p>		
R2	<p>The Bidder should demonstrate its experience within the last ten (10) years in the completing the following stages for PED systems which use space-based remote sensing and intelligence data</p> <ul style="list-style-type: none"> 5- Design 6- Manufacture 7- Commission 8- Operation <p>The Bidder should provide details of its experience by using the</p>	<p>8 points = Demonstrated experience in all 4 stages</p> <p>6 points = Demonstrated experience in 3 stages</p> <p>4 points = Demonstrated experience in 2 stages</p> <p>2 points = Demonstrated experience in 1 stage</p> <p>0 points = no experience</p> <p>MAX Points = 8</p>		



Criteria	Point-Rated Criteria	Evaluation Factors	Bidder Self-Score	Justification (Cross-reference to resource resume as applicable)
	Project Reference Response Template provided in Attachment 4.7.			
		Total points (out of 23 points)		



Attachment 4.4: Financial Proposal for **Stream 2 – Data Exploitation Concept**

Table 1 – Firm Requirement

Description	Total Firm price (GST/HST excluded)
Work to be completed per Section 3.1 of the Statement of Work in Annex A-2	\$

Table 2 – Optional Professional Services

Item number	Description	Firm all inclusive Per diem (GST/HST Excluded)
1	Work to be completed per Section 3.2 of the Statement of Work in Annex A-2– Option Period 1 (1 April to 30 September 2020) Bidders are to provide an all-inclusive Firm per diem price for the total of resources that will perform the work under Section 3.1 of the Statement of Work	\$
2	Work to be completed per Section 3.2 of the Statement of Work in Annex A-2– Option Period 2 (1 October 2020 to 31 March 2021) Bidders are to provide an all-inclusive Firm per diem price for the total of resources that will perform the work under Section 3.1 of the Statement of Work	\$
	Total price of optional professional services for evaluation purposes (items 1 + 2)	\$

Total price for financial evaluation (Table 1 and Table 2 totals): \$ _____



Attachment 4.5: Mandatory and Point-Rated Technical Evaluation Criteria
for **Stream 3– Alternate Mission Concept**

Criteria	Mandatory Criteria	Statement of Compliance and Cross Reference to Proposal	MET	NOT MET
M4	<p>The Bidder must have demonstrated experience performing an electro-optical (EO) or infrared (IR) (which much include hyper and multi-spectral) design concept study within the last five (5) years. The concept study must have assessed all of the following areas:</p> <ul style="list-style-type: none"> 7- Tasking, Telemetry, and Communications requirements; 8- Communications links (frequency, bandwidth); 9- Constellation composition, size and orbit(s); 10- Recommended sensors/sensor types, secondary payload, duty cycle, bus, frequency bands(s); 11- Detailed analysis of the sensor parameters (swath, resolution, Noise Equivalent Sigma Zero (NESZ), ambiguity, bandwidth, scene size); and 12- Detailed cost estimates. <p>To demonstrate compliance, the Bidder must provide details of the concept study using the Project Reference Response Template provided in Attachment 4.7.</p>			
M2	<p>The Bidder must demonstrate that the proposed resource(s) has/have a minimum of fifteen (15) years' experience working with EO or IR spacecraft payloads.</p> <p>To demonstrate compliance, the Bidder must provide a resume of each team member and provide details of the project(s), their role(s), dates and duration(s).</p>			



Technical Point Rated Requirements – Stream 3 – Alternate Mission Concept

Criteria	Point-Rated Criteria	Evaluation Factors	Bidder Self-Score	Justification (Cross-reference to resource resume as applicable)
R1	<p>The Bidder should demonstrate that the proposed resource(s) in M2 has/have experience within the last ten (10) years designing EO or IR payloads.</p> <p>The Bidder should provide a detailed description of the project(s) and the resource(s)' role in the design of the EO or IR payload(s).</p>	<p>15 points = Demonstrated experience designing 3 or more EO or IR payloads</p> <p>10 points = Demonstrated experience designing 2 EO or IR payloads</p> <p>5 points = Demonstrated experience designing 1 EO or IR payload.</p> <p>0 points = No experience</p> <p>MAX Points = 15</p>		
R2	<p>The Bidder should demonstrate that the proposed resource(s) in M2 has/have experience within the last ten (10) years designing satellite systems (including both payload and space vehicle) which included EO or IR as the main payload.</p> <p>The Bidder should provide a detailed description of the project(s) and the team member's role in the design of the satellite system(s) which included EO or IR as the main payload(s).</p>	<p>15 points = Demonstrated experience designing 3 or more satellite systems which included EO or IR as the main payloads.</p> <p>10 points = Demonstrated experience designing 2 satellite systems which included EO or IR as the main payloads.</p> <p>5 points = Demonstrated experience designing 1 satellite system which included EO or IR as the main payload.</p> <p>0 points = No experience</p> <p>MAX Points = 15</p>		



Criteria	Point-Rated Criteria	Evaluation Factors	Bidder Self-Score	Justification (Cross-reference to resource resume as applicable)
R3	<p>The Bidder should demonstrate its experience within the last ten (10) years in the completing the following stages for satellite systems which included EO or IR payloads:</p> <ul style="list-style-type: none"> 9- Design 10- Manufacture 11- Commission 12- Operation <p>The Bidder should provide details of its experience by using the Project Reference Response Template provided in Attachment 4.7.</p>	<p>8 points = Demonstrated experience in all 4 stages 6 points = Demonstrated experience in 3 stages 4 points = Demonstrated experience in 2 stages 2 points = Demonstrated experience in 1 stage 0 points = no experience</p> <p>MAX Points = 8</p>		
		Total score (out of 38 points)		



Attachment 4.6: Financial Proposal for **Stream 3– Alternate Mission Concept**

Table 1 – Firm Requirement

Description	Total Firm price (GST/HST excluded)
Work to be completed per Section 3.1 of the Statement of Work in Annex A-3	\$

Table 2 – Optional Professional Services

Item number	Description	Firm all inclusive Per diem (GST/HST Excluded)
1	<p>Work to be completed per Section 3.2 of the Statement of Work in Annex A-3– Option Period 1 (1 April to 30 September 2020)</p> <p>Bidders are to provide an all-inclusive Firm per diem price for the total of resources that will perform the work under Section 3.1 of the Statement of Work</p>	\$
2	<p>Work to be completed per Section 3.2 of the Statement of Work in Annex A-3– Option Period 2 (1 October 2020 to 31 March 2021)</p> <p>Bidders are to provide an all-inclusive Firm per diem price for the total of resources that will perform the work under Section 3.1 of the Statement of Work</p>	\$
	Total price of optional professional services for evaluation purposes (items 1 + 2)	\$

Total price for financial evaluation (Table 1 and Table 2 totals): \$ _____



Attachment 4.7 – Project Reference Response template

Project Name:	<i>Name of the project</i>
Project Customer name:	<i>Name of the project customer</i>
Project Value (\$CDN):	<i>The value of the project when contract was awarded</i>
Project Start Date(mm/yyyy):	<i>Start month and year of the project</i>
Project Scheduled Completion Date (mm/yyyy):	<i>The schedule project completion date as per the project contract.</i>
Project Actual Completion Date(mm/yyyy):	<i>Actual completion date of the project or scheduled completion date if the project is still in progress.</i>

Project Scope and Experience:	<p><i>Summary of the work undertaken to fulfill the contract</i> <i>Identify hardware/service deliverable(s) required</i> <i>Explanation of how this project experience is applicable to DND requirements</i></p>
Additional Comments	<i>Example: with reference to any other requirement where a reference client is requested</i>

Project Milestones Achieved	
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Validator's Remarks (Optional)	<i>This is an optional section which allows the validator to provide supplementary information related to the project.</i>
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Validator's contact information:

Name:	
Company Name:	
Phone Number:	
Email Address:	



ATTACHMENT 5.1

FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY – CERTIFICATION

(insert if applicable)

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit [Employment and Social Development Canada \(ESDC\) – Labour's](#) website.

Date: _____ (YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

- A1. The Bidder certifies having no work force in Canada.
- A2. The Bidder certifies being a public sector employer.
- A3. The Bidder certifies being a federally regulated employer being subject to the Employment Equity Act.
- A4. The Bidder certifies having a combined work force in Canada of less than 100 permanent full-time and/or permanent part-time employees.

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

- A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

- A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

- B1. The Bidder is not a Joint Venture.

OR



- () B2. The Bidder is a Joint venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions)