Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government Services Canada/Réception des soumissions Travaux publics et Services gouvernementaux Canada
Place Bonaventure, South-East Portal, 7th Floor
800 de la Gauchetière Street West
Montréal
Quebéc
H5A 1L6

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

Proposal To: Public Works and Government Services Canada

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

Proposition aux: Travaux Publics et Services Gouvernementaux Canada

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

Comments - Commentaires

Title - Sujet
WildFireSat Phase A

Solicitation No. - N° de l'invitation	**Date**
9F045-190018/A	2019-04-23

Client Reference No. - N° de référence du client
9F045-190018

GETS Reference No. - N° de référence de SEAG
PW-$MTD-100-15314

File No. - N° de dossier	**CCC No./N° CCC - FMS No./N° VME**
MTD-9-42014 (100)	

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM
on - le 2019-06-04

Time Zone
Fuseau horaire
Heure Avancée de l'Est
HAE

F.O.B. - F.A.B.
Plant-Usine: ☐ **Destination:** ☑ **Other-Autre:** ☐

Address Enquiries to: - Adresser toutes questions à:	**Buyer Id - Id de l'acheteur**
Bergeron, Bruno	mtd100

Telephone No. - N° de téléphone	**FAX No. - N° de FAX**
(450) 926-4562 ( )	(514) 496-3822

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:
AGENCE SPATIALE CANADIENNE
9F045 SPACE UTILIZATION DEVELOPMENT
6767 ROUTE DE L AEROPORT
ST HUBERT
Québec
J3Y 8Y9
Canada

Instructions: See Herein

Instructions: Voir aux présentes

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

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
.	

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

Telephone No. - N° de téléphone
Facsimile No. - N° de télécopieur

Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)
Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)

Signature **Date**

Issuing Office - Bureau de distribution
Space Program Directorate/Direction des programmes spatiaux
John H. chapman Space Centre
Centre spatial John H. Chapman
6767 Route de l'Aéroport
6767, route de l'Aéroport
Saint-Hubert
Quebec
J3Y 8Y9

Canada

PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation is divided into six 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 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.

1.2 Summary

With this Request for Proposals (RFP), the Canadian Space Agency's (CSA) plans to award up to two contract in the Phase A for the WildFireSat (WFS) mission, as described in Annex A of this Request for proposals.

1.2.1 Security Requirements

THIS DOCUMENT CONTAINS A SECURITY REQUIREMENT

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 of Public Works and Government Services Canada (http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html) website.

1.3 Statement of Work

The Work to be performed is detailed in Annex A of the current request for proposal.

1.4 Debriefings

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

1.5 Trade Agreements

This requirement is not subject to the Trade Agreements as per the following dispositions:

- Canadian Free Trade Agreement (CFTA):
  Chapter 5, Annex 520.1 (exclusion for CSA's space projects)
- World Trade Organization Agreement on Government Procurement (WTO-AGP):
  Appendix I, Annex I (CSA excluded)
- Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP):
  Chapter 15, Annex 15-A (CSA excluded)
- Canada-European Union Comprehensive Economic and Trade Agreement (CETA):
  Chapter 19 (exclusion for Research and Development contracts)
- North American Free Trade Agreement (NAFTA):
  Chapter 10, Annex 1001.1a-1 (CSA excluded)
- Canada-Chile Free Trade Agreement:
  Annex K *bis*-01, 1-1 (CSA excluded)
- Canada-Peru Free Trade Agreement:
  Annex 1401,1-1 (CSA excluded)
- Canada-Colombia Free Trade Agreement:
  Annex 1401-1 (CSA excluded)
- Canada-Panama Free Trade Agreement:
  Chapter 16, Annex I (CSA excluded)

1.6 Canadian Content

The requirement is limited to Canadian goods and services

1.7 epost Connect service

This bid solicitation allows bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

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

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

The 2003 (2018-05-22) 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: 120 days

2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated in the bid solicitation."

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

2.2.1 Mandatory Non-Disclosure Agreement

If a Supplier or a subcontractor wishes to review the documents entitled RD-01: CWFMS-TN-005-NGCca and RD-02: CWFMS-TN-006-NGCca, it must request the documents entitled RD-01: CWFMS-TN-005-NGCca and RD-02: CWFMS-TN-006-NGCca from the Contracting Authority listed below through e-mail. The documents entitled RD-01: CWFMS-TN-005-NGCca and RD-02: CWFMS-TN-006-NGCca contain information that is confidential or proprietary to Canada or third party. The Supplier or any subcontractor must sign a Non-Disclosure Agreement in the form set out in Attachment 1 to Part 2 and return the original duly signed to the Contracting Authority before being provided with a copy of the documents entitled RD-01 : CWFMS-TN-005-NGCca and RD-02 : CWFMS-TN-006-NGCca. All Suppliers must destroy or delete all copies of the documents entitled RD-01: CWFMS-TN-005-NGCca and RD-02: CWFMS-TN-006-NGCca at the end of the RFP period, or upon request from the Contracting Authority within thirty (30) days following that request.

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 10 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 the Province of Quebec.

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 Basis for Canada's Ownership of Intellectual Property

The Canadian Space Agency has determined that any intellectual property rights arising from the performance of the Work under the resulting contract will belong to Canada, for the following reason, as set out in the *Policy on Title to Intellectual Property Arising Under Crown Procurement Contracts*:

> "4. Where the main purpose of the Crown Procurement Contract, or the deliverables contracted for, is to augment an existing body of Crown Background as a prerequisite to the transfer of the expanded Background to the private sector, through licensing or assignment of ownership (not necessarily to the original contractor), for the purposes of Commercial Exploitation."

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

- If the Bidder chooses to submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. Bidders must provide their bid in a single transmission. The epost Connect service has the capacity to receive multiple documents, up to 1GB per individual attachment.

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

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

- If the Bidder chooses to submit its bid in hard copies, Canada requests that the Bidder submits its bid in separately bound sections as follows:

  Section I: Technical Bid (1 hard copy *and 1 soft copy on a USB key)*
  Section II: Financial Bid (1 hard copy *and 1 soft copy on a USB key*)
  Section III: Certifications (1 hard copy *and 1 soft copy on a USB key*)

  If there is a discrepancy between the wording of the soft copy on electronic media and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

- If the Bidder is simultaneously providing copies of its bid using multiple acceptable delivery methods, and if there is a discrepancy between the wording of any of these copies and the electronic copy provided through epost Connect service, the wording of the electronic copy provided through epost Connect service will have priority over the wording of the other copies.

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

Canada requests that bidders follow the format instructions described below in the preparation of hard copy of their bid:

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573). To assist Canada in reaching its objectives, bidders should:

1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and

2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work. Instructions regarding the technical bid are provided in section “4.1.1 Technical Evaluation”.

Section II: Financial Bid
Bidders must submit their financial bid in accordance with the Basis of Payment. Instructions regarding the financial bid are provided in section “4.1.2 Financial Evaluation”.

3.1.1 Electronic Payment of Invoices – Bid

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

If Annex D 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.

3.1.2 Exchange Rate Fluctuation

C3011T (2013-11-06), Exchange Rate Fluctuation

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

In their technical bid, Bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability and describe their approach for carrying out the work in a thorough, concise and clear manner. 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. To demonstrate that a criteria is met, it is not sufficient to only repeat statements contained in the bid solicitation or to indicate that a criteria is met without explaining why and how. The technical bid should provide enough details and explanations to allow for a full assessment and demonstrate that each technical criteria has been met.

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.

Canada will evaluate only the documentation provided with a bidder's bid. Canada will not evaluate information such as references to website addresses where additional information can be found, or technical manuals or brochures not submitted with the bid.

4.1.1.1 Point Rated Technical Criteria

Point Rated Technical Criteria are included in Annex H.

Upon closing of the bids, bids shall be assessed and submitted to a numerical score according to the point rated technical criteria, listed in the table in Annex H.

Bidders should indicate where to find the information demonstrating that a criteria is met in their bid, specifying document titles and page and paragraph numbers.

4.1.2 Financial Evaluation

4.1.2.1 Mandatory Financial Criteria

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

Bidders must submit their financial bid in accordance with the Basis of Payment at Annex B, and must provide individual prices for each of the listed elements at Annex B.

The maximum funding available for the Contract resulting from the bid solicitation is $1,350,000.00 (Applicable Taxes extra, FOB destination (Canadian Space Agency, Longueil, Quebec), Canadian customs duties and excise taxes included). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.

Bids for which the value associated to Item 1 or Item 2 is superior to the value of the corresponding item as identified below will be deemed non-responsive. The amounts listed below are Applicable Taxes extra, FOB destination (Canadian Space Agency, Longueil, Quebec), Canadian customs duties and excise taxes included, all-inclusive.

Item 1	Main requirement (Basis of Payment B1)	$1,200,000.00
Item 2	Task authorisation maximum budget (Basis of Payment B2)	$ 150,000.00

4.2 Basis of Selection – Highest Rated Within Budget

1. To be declared responsive, a bid must:
    a. comply with all the requirements of the bid solicitation;
    b. obtain the required minimum of 10 points for the technical evaluation criterion P1 which is subject to point rating. The rating is performed on a scale of 20 points.
    c. obtain the required minimum of 12 for the technical evaluation criterion P2 which is subject to point rating. The rating is performed on a scale of 32.
    d. obtain the required minimum of 18 for the technical evaluation criterion P3 which is subject to point rating. The rating is performed on a scale of 40 .
    e. obtain the required minimum of 9 for the technical evaluation criterion P4 which is subject to point rating. The rating is performed on a scale of 24 .
    f. obtain the required minimum of 9 for the technical evaluation criterion 5 which is subject to point rating. The rating is performed on a scale of 24 .
    g. obtain the required minimum of 58 overall for the technical evaluation criteria which are subject to point rating.

2. To establish the Tasks authorizations score, each responsive bid will be prorated against the bidder with the highest number of hours as per Annex “I” and multiply by 5. Maximum score achievable is thus 5 points.

3. The rating is performed on a scale of 145. Bids not meeting (a) or (b) or (c) or (d) or (e) or (f) or (g) will be declared non responsive. Canada reserves the right to recommend the award of a maximum of two contracts to the responsive bids with the highest number of points, provided that the total evaluated price for each bid, does not exceed the maximum funding for this requirement.

4. In the event that more than one responsive bid has the same total points on the technical evaluation, the responsive bid with the highest number of points for criteria P1 will be recommended for award of a contract.

5. In the event that more than one responsive bid has the same total points on the technical evaluation, the responsive bid with the highest score for the sum of the technical evaluation of criteria P1, P2, P3 and P4 will be recommended for award of a contract.

6. The table below illustrates an example where three bids were received and the selection of the contractor is determined by the highest rated within budget. The total available points equal 70 and the highest number of hours proposed within the point rated evaluation of the Task Authorizations (Annex "I") is 1616.75.

		Bidder 1	Bidder 2	Bidder 3
Main requirement (Max 300K$)		$1,200,000	**$1,205,000**	$1,200,000
Task Authorizations (Max 150K)		$149,999.70	$149,999.50	$149,999.99
Calculations	**Technical Merit Score**	60/65 (Meet all min. scores as per annex "H")	Did not meet mandatory budget	60/65 (Meet all min. scores as per annex "H")
	Task Authorizations Score	1616.75/1616.75 x 5 =5	Did not meet mandatory budget	1432.25/1616.75 x 5 =4.43
Combined Rating		65	-	64.43
Overall Rating		**1st**	**Exceeds mandatory budget on option 1**	**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 declaration form available on the Forms for the Integrity Regime website (http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html), to be given further consideration in the procurement process.

5.1.2 Additional Certifications Required with the Bid

5.1.2.1 Canadian Content Certification

This procurement is limited to Canadian goods and Canadian services.

The Bidder certifies that:

( ) a minimum of 80 percent of the total bid price consist of Canadian goods and Canadian services as defined in paragraph 5 of clause A3050T.

For more information on how to determine the Canadian content for a mix of goods, a mix of services or a mix of goods and services, consult Annex 3.6, Example 2, of the Supply Manual.

A3050T (2018-12-06), Canadian Content Definition

5.2 Certifications Precedent to Contract Award and Additional Information

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

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the Ineligibility and Suspension Policy (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 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.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the “FCP Limited Eligibility to Bid” list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed annex titled Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

5.2.3 Additional Certifications Precedent to Contract Award

5.2.3.1 Education and Experience

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

PART 6 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

6.1 Security Requirements

1. Before award of a contract, 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. Bidders are reminded to obtain the required security clearance promptly. Any delay in the award of a contract to allow the successful Bidder to obtain the required clearance will be at the entire discretion of the Contracting Authority.

3. For additional information on security requirements, Bidders should refer to the Contract Security Program 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.

7.1.2 Task Authorization

A portion of the Work could be performed on an "as and when requested basis" using Tasks 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 Technical Authority will provide the Contractor with a description of the task using the Task Authorization Form specified in Annex G .

2. The Task Authorization (TA) will contain the details of the activities to be performed, a description of the deliverables, and a schedule indicating completion dates for the major activities or submission dates for the deliverables. The TA will also include the applicable basis(bases) and methods of payment as specified in the Contract.

3. The Contractor must provide the Technical Authority, within 7 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 Contracting 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 Canada's Obligation - Portion of the Work - Task Authorizations

B9031C (2011-05-16) Canada's Obligation - Portion of the Work - Task Authorizations

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

2040 (2018-06-21), General Conditions – Research and Development, apply to and form part of the Contract.

7.2.2 Amendments to the General Conditions

The General Conditions 2040 are amended by the following clause, which apply to and form part of the Contract:

K3410C (2015-02-25), Canada to Own Intellectual Property Rights in Foreground Information

7.3 Security Requirements

The following security requirements (SRCL and related clauses provided by the Contract Security Program) apply and form part of the Contract.

SECURITY REQUIREMENT FOR CANADIAN SUPPLIER:
PWGSC FILE # 9F045-20190018

1. The Contractor/Offeror must, at all times during the performance of the Contract/Standing Offer, hold a valid Designated Organization Screening (DOS) with approved Document Safeguarding at the level of **PROTECTED B**, issued by the Canadian Industrial Security Directorate (CISD), Public Works and Government Services Canada (PWGSC**)**.

2. The Contractor/Offeror personnel requiring access to **PROTECTED** information, assets or work site(s) must EACH hold a valid **RELIABILITY STATUS,** granted or approved by the CISD/PWGSC.

3. The Contractor **MUST NOT** utilize its Information Technology systems to electronically process, produce or store **PROTECTED** information until the CISD/PWGSC has issued written approval. After approval has been granted or approved, these tasks may be performed at the level of **PROTECTED B.**

4. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of CISD/PWGSC.

5. 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 12 months after date of Contract inclusive.

7.5 Authorities

7.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Bruno Bergeron
Supply Manager
Public Works and Government Services Canada
Directorate: Space Programs Directorate
Address: 6767, route de l'Aéroport, Longueuil, QC J3Y 8Y9
Telephone: 450-926-4562
E-mail address: Bruno.Bergeron@canada.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 Technical Authority

The Technical Authority for the Contract is: [shall be completed at Contract Award]

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

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

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

7.5.3 Contractor's Representative

The Contractor's Representative for the Contract is: [to be completed by bidder]

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.

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.

7.7 Payment

7.7.1 For the Work described the Statement of Work in Annex A :

7.7.1.1 Basis of Payment - Firm Price

In consideration of the Contractor satisfactorily completing its obligations under the Contract, the Contractor will be paid a firm price for a cost of $_____ (*insert the amount at contract award*). Customs duties are included 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 Milestone Payments – Not subject to holdback

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

a. an accurate and complete claim for payment using PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;

b. all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;

c. all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

7.7.1.3 Schedule of Milestones

Payments will be made in accordance with the Contract and the schedule of milestones at Annex B.

7.7.2 For the Work performed through task authorizations :

7.7.2.1 Basis of payment: Individual task authorizations

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 included 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.

7.7.2.2 Limitation of expenditure

For the Work performed through task authorizations, in accordance with the Basis of payment at Annex B:

1. Canada's total liability to the Contractor under the Contract must not exceed $ _____. Customs duties are included and Applicable Taxes are extra.
2. No increase in the total liability of Canada or in the price of the Work 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 approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of the Contracting Authority. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:
    a. when it is 75% committed, or
    b. four months before the contract expiry date, or
    c. as soon as the Contractor considers that the contract funds provided are inadequate for the completion of the Work,

    whichever comes first.

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

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

B9031C (2011-05-16) Canada's Obligation - Portion of the Work - Task Authorizations

7.7.2.4 Progress Payments

1. Canada will make progress payments in accordance with the payment provisions of the Contract, no more than once a month, for cost incurred in the performance of the Work, up to 100 percent of the amount claimed and approved by Canada if:
    a. an accurate and complete claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
    b. the amount claimed is in accordance with the basis of payment;
    c. the total amount for all progress payments paid by Canada does not exceed 100 percent of the total amount to be paid under the Contract;
    d. all certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives.

2. The balance of the amount payable will be paid in accordance with the payment provisions of the Contract upon completion and delivery of all work required under the Contract if the Work has been accepted by Canada and a final claim for the payment is submitted

3. Progress payments are interim payments only. Canada may conduct a government audit and interim time and cost verifications and reserves the rights to make adjustments to the Contract from time to time during the performance of the Work. Any overpayment resulting from progress payments or otherwise must be refunded promptly to Canada.

7.7.3 Electronic Payment of Invoices – Contract

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

[If Applicaple, Accepted Electronic Payment Instrument, are listed at Contract Award by the Contracting Authority, in accordance with the information provided in Annex D of the winning bid]

7.7.4 Time Verification

C0711C (2008-05-12) Time Verification

7.8 Invoicing Instructions

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment.
   Each claim must show:
    a. all information required on form PWGSC-TPSGC 1111;
    b. all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
    c. the description and value of the milestone claimed as detailed in the Contract.

Each claim must be supported by:

a. a copy of time sheets to support the time claimed;
b. a copy of the invoices, receipts, vouchers for all direct expenses, travel and living expenses;
c. a copy of the monthly progress report.

2. Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.

3. i. Send one PDF copy of the claim by e-mail to the Contracting and Technical Authorities as identified under sub-articles 5.1 and 5.2 of the contract with copy to the following CSA e-mail address: asc.facturation-invoicing.csa@canada.ca ;

   ii. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to CSA's Financial Services using the following mailing address:

   Canadian Space Agency
   Care of: ''9F050-Financial Services''
   6767 route de l'Aéroport, St-Hubert, Quebec
   J3Y 8Y9

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

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.

7.9.2 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms 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 the Province of Quebec.

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 general conditions 2040 (2018-06-21);
(c) Annex A, Statement of Work;
(d) Annex B, Basis of Payment
(e) Annex C, Security Requirements Check List;
(f) Annex D, Electronic Payment Instruments
(g) Annex E, Mandatory Non-Disclosure Agreement
(h) Annex F, Federal Contractors Program for Employment Equity - Certification
(i) Annex G, Task Authorization Form and Process
(j) Annex H, Point-Rated Technical Evaluation Criteria
(k) Annex I, Point-Rated Technical Evaluation Criteria – Tasks Authorizations
(l) the signed Task Authorizations (including all of its annexes, if any)
(m) the Contractor's bid dated _____.

7.12 *SACC Manual* Clauses

A2000C (2006-06-16) Foreign Nationals (Canadian Contractor)
A2001C (2006-06-16) Foreign Nationals (Foreign Contractor)
A3015C (2014-06-26) Certifications – Contract

7.13 Insurance

G1005C (2008-05-12) Insurance

7.14 Disclosure of Intellectual Property

On completion of the Work, the Contractor must submit to the Technical Authority and to the Contracting Authority, a copy of the Intellectual Property Disclosures as per the formats prescribed in the Annex A, CDRL 006 (DID-0009). Such disclosure will include a comprehensive update of the preliminary Background Intellectual Property (BIP) disclosure report that was submitted as part of the Contractor’s bid dated _____.

All Intellectual Property Disclosure reports are Contract deliverables that are subject to Canada’s review and acceptance.

7.15 CSA’s Directive on communications with the media

1. Definitions

“Communication Activity(ies)” includes: public information and recognition, the planning, development, production and delivery or publication, and any other type or form of dissemination of marketing, promotional or information activities, initiatives, reports, summaries or other products or materials, whether in print or electronic format that pertain to the present Contract (including announcements pertaining to its award), all communications, public relations events, press releases, social media releases, or any other communication directed to the general public in whatever form or media it may be

in, including but without limiting the generality of the preceding done through any company web site.

2. Communications Activities

The Contractor must coordinate with the Canadian Space Agency (CSA) all Communication Activities that pertain to the present Contract.

3. Communications Activity Coordination Process

The Contractor must coordinate with the CSA's Directorate of Communications and Public Affairs all Communication Activities pertaining to the present contract. To this end, the contractor must:

a) As soon as the Contractor intends to perform a Communication Activity, send a Notice to the CSA's Directorate of Communications and Public Affairs. The Communications Notice must include a complete description of the proposed Communication Activity. The Notice must be in writing in accordance with the of the General Conditions contract titled ''Notice''. The Communications Notice must include a copy of the proposed Communication Activity.

b) The Contractor must provide to the CSA any and all additional document in any appropriate format, example or information that the CSA deems necessary, at its entire discretion to correctly and efficiently coordinate the proposed Communication Activity. The Contractor agrees to only proceed with the proposed Communication Activity after receiving a written confirmation of coordination of the Communication Activity from the CSA's Directorate of Communications and Public Affairs.

c) Should the Contractor proceed with the Communication Activity without having previously received the written confirmation of coordination from the CSA's Directorate of Communications and Public Affairs, subject to giving Notice to the Contractor, Canada is entitled to exercise its right under section 155 of the ***Financial Administration Act*** and retain from payment to the Contractor or recover from the Contractor the amount of damages that may be due to Canada as a result of the release of information by the Contractor.

ANNEX A – STATEMENT OF WORK

The Statement of Work is on the following page as an attachment to this document.

Agence spatiale canadienne | Canadian Space Agency

CSA-WFS-SOW-0001

Canadian Space Agency
Space Utilization

WildFireSat

Statement of Work

Initial Release
April 18, 2019

NCAGE Code: L0889

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REVISION HISTORY

Rev.	Description	Initials	Date
IR	Initial Release	CC	April 18, 2019

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1 INTRODUCTION

1.1 MISSION OBJECTIVES

The WildFireSat (WFS) mission responds to a need identified by Natural Resources Canada (NRCan)'s Canadian Forest Service (CFS), Environment and Climate Change Canada (ECCC) and academia, to increase Canada's ability to monitor wildland fires within Canada. The WFS mission will provide an initial space-based capability as part of a Canadian wildland fire monitoring service that the users foresee to provide to governments, academia and commercial enterprises:

- Near real-time information in support of wildland fire management and research;
- Emission measurements in support of international requirements for carbon reporting;
- Improved smoke and air quality forecasting.

A continuous, real-time coverage for a Canadian or global wildfire monitoring service would require a future constellation of space-based sensors, which is beyond the scope of the current WFS mission. Rather, the WFS mission would provide an initial space asset that can provide daily coverage of at least 85% of the Canadian Area of Interest (AoI).

It should be emphasized that WFS represents a wildfire monitoring capability and not a wildfire detection capability. A key mission objective of WFS is to monitor accurately the radiated power from wildfires to infer their characteristics and be able to improve fire management practices and report on carbon emission. The mission would confirm that the current selection of frequency bands and algorithms is adequate to retrieve fire characteristics with the desired accuracy.

As such, the WFS mission will serve as a stepping stone to accomplish the long-term objective of establishing a new, potentially commercial, fully operational 24/7 service in the future. WFS could help prepare the user community in Canada and possibly abroad, and thus create the customer-base that would be needed for a future global operational data service to be commercially viable.

1.2 BACKGROUND

Current remote sensing satellites do not provide the data that is required to improve fire management, smoke and air quality forecasting as well as wildfire carbon emissions reporting.

WFS is a proposed mission that fills the observation gap by providing daily wildfire monitoring data for at least 85% of the Canadian Area of Interest (AoI), delivered to the user within 30 min. It focusses on measurements in the late afternoon, a period during which fire activity is high but no relevant satellite observations exist.

The wildfire monitoring business need has been investigated since 2006 and related technology was partly demonstrated in space in 2011[1]. In 2012 the Canadian Wildland Fire Monitoring System (CWFMS) was proposed as one of five microsatellite missions to undergo a Phase 0 study which was carried out in 2014-2016. Several Space Technology Development Program (STDP) activities have been carried out in parallel to increase the maturity of the proposed mission enabling instrument technology.

The micro-bolometer detector technology that was defined in Phase 0 has now been developed up to a Technology Readiness Level (TRL) of 5[2,3]. In view of achieving Science Readiness Level-6 (SRL-6), a flight instrument version proposed in Phase 0 study is being built to perform field characterization of fires from fixed-wing piloted aircraft in 2019 and 2020.

Phase A activities are undertaken to confirm that the mission can be implemented by the Canadian industry within a cost cap (refer to section 3.2).

1.3 SCOPE

This Statement of Work (SOW) defines the work to be conducted by the Contractor in the Phase A for the WFS mission.

Phase A will be led by CSA with active participation of NRCan-CFS and ECCC, and potentially other government partners. These government organizations will support Phase A activities via CSA and through participation in the WFS Users and Science Team (U&ST).

The Contractor's activities during Phase A are two-fold:

1. Mission definition of an initial operational capability, referred to as WFS Mission;
2. Development of a new business model for the delivery of a long-term wildfire monitoring data service.

To position the Canadian industry at the center of these efforts the CSA intends to award two Phase A contracts, each addressing both topics defined above, that will be executed in parallel to maximize the presence of the Canadian industry in this important first phase.

It is possible that during the course of Phase A, new interest will come up from the international community, or the commercial community, related to the development of wildfire remote sensing infrastructure. For these cases and other unforeseen cases, the contract includes the possibility of giving a Task Authorization to the Contractor to investigate activities that are related to new information, and that are in line with the scope of work of this contract.

[1] The New InfraRed Sensor Technology (NIRST) instrument was demonstrated with partial results on the international partnership Aquarius SAC-D mission (2011-2015).
[2] L. Ngo Phong et al., A low resource imaging radiometer for nanosatellite based fire diagnosis, in Infrared Remote Sensing and Instrumentation XXVI, SPIE vol. 10765, edited by M. Strojnik and M.S. Kirk, 2018.
[3] L. Ngo Phong et al., Uncooled midwave infrared sensors for spaceborne assessment of fire characteristics, in MOEMS and Miniaturized Systems XXVI, SPIE vol. 10116, edited by W.l Piyawattanametha and Y. H. Park, 2017.

1.3.1 WFS Mission Definition

The large portion of the scope of work activities outlined in this document is based on the need to develop an initial Canadian space capability that can provide wildfire monitoring data to the users with a daily coverage of at least 85% of the Canadian Area of Interest (AoI).

The Contractor is expected to develop a system concept for the WFS mission, derive system requirements, and to produce a mission development plan as well as cost estimates for Phases B through E, based on the Mission Requirements Document (AD-01). The new system concept could take into account the work performed during Phase 0 (RD-01) and (RD-02).

From the system conceptual design, the Contractor will derive system requirements to be captured in the System Requirements Document (SRD). Product Assurance Requirements (PAR) released by CSA as an input to the Phase A work will also be revised, in consultation with the Contractor, during this Phase. In parallel, the Contractor will develop a System Concept of Operations which will be integrated into a draft Concept of Operations (ConOps) document released by CSA as another input to the Phase A work. Each of these products will inform mission development planning and programmatic estimates for future phases.

At the end of Phase A the Contractor will demonstrate at the System Requirements Review (SRR) that:

- The mission conceptual design provides a system that meets the mission requirements (AD-01) within an acceptable level of risk;
- The System Concept of Operations (CDRL-9) and the system requirements are compatible;
- The updated PAR (AD-02) are met; and
- The programmatic elements of the project (scope, cost, schedule, risk) are sufficiently detailed to demonstrate that they meet the programmatic objectives agreed at the time of the Concept Review and that the project is ready to move forward with the Preliminary Design Phase (Phase B).

1.3.2 Development of a New Business Model

It is essential that the investment of the Government of Canadian (GoC) in the WFS Phase A will in the end ensure sustainable, long-term availability of wildfire monitoring data to end-users, at the Canadian scale or even global scale.

To this end, the WFS Phase A will investigate new business models for the delivery of a wildfire monitoring data service, either as a follow-on to a first GoC operational capability, or as a solution that replaces this first GoC WFS mission altogether.

Examples of possible (elements of) new business models are:

- An end-to-end commercial data service, potentially with anchor customers;
- Other types of government-industrial partnerships;
- International partnerships;
- Partnerships at the provincial/territorial level.

1.3.3 Work Breakdown Structure (WBS)

The proposed Work Breakdown Structure (WBS) is shown in Figure 1-1.

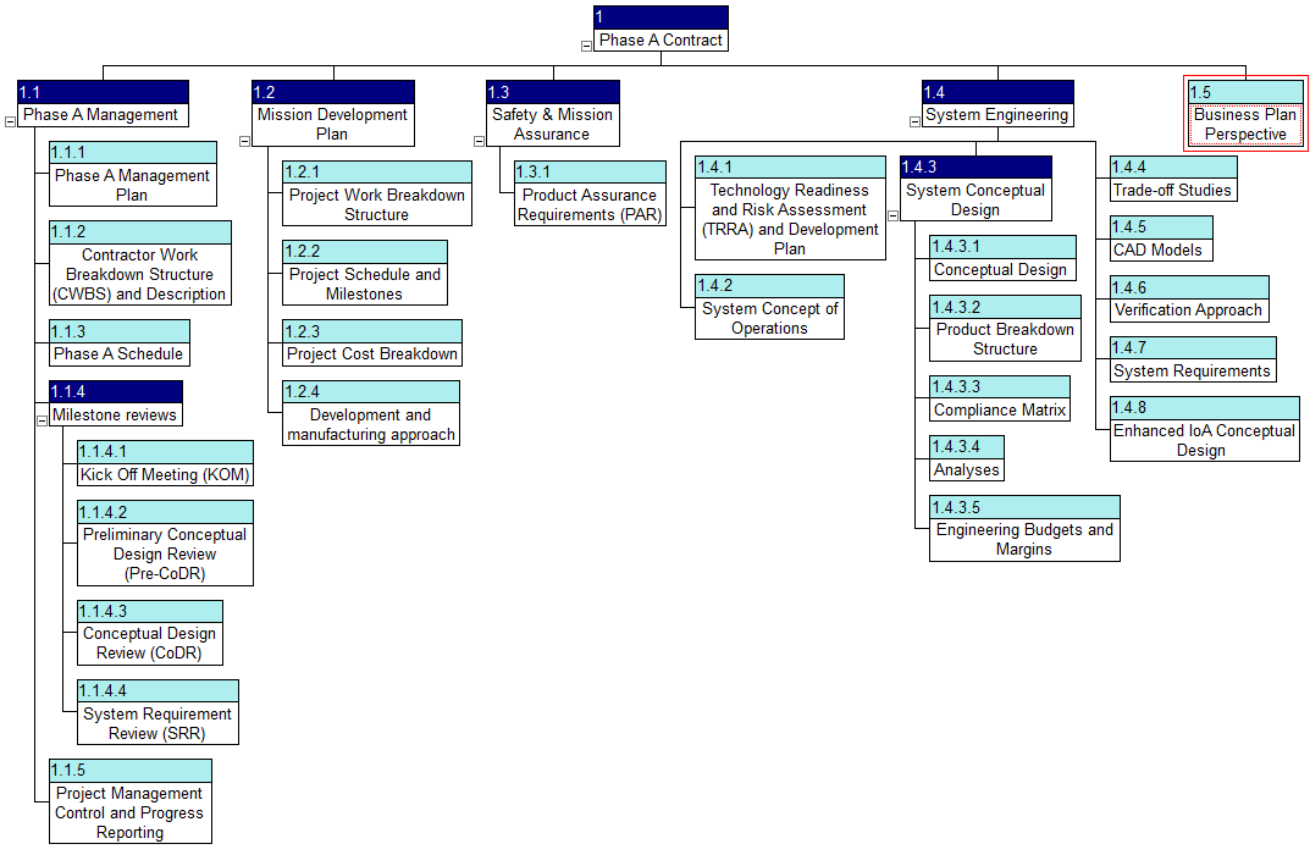

FIGURE 1-1 – PHASE A CONTRACT WBS

1.4 CONVENTIONS

1.4.1 Language Convention

As English is the standard oral and written language for design, development, operation and utilization of space projects, the Contractor must use English for this Work, and for exchanges with CSA, along with System International (SI) units.

1.4.2 Document Convention

The following modal verbs, as used in this document, have the specific meaning as indicated below:

“must”	Indicates a mandatory requirement.
“should”	Indicates a preferred, but not mandatory alternative.
“may”	Indicates an option.
“will”	Indicates a statement of intention or fact, as does the use of present indicative active verbs.
‘Contractor’	Designates the team that will conduct the work, which could be a mixed team drawn from Canadian industry, universities or research institutes, including subcontractors.

2 DOCUMENTS

2.1 APPLICABLE DOCUMENTS

The following documents and revision level are applicable and form an integral part of this document to the extent specified herein.

TABLE 2-1 – APPLICABLE DOCUMENTS

AD No.	Document Number and Revision	Document Title
AD-01	CSA-WFS-RD-0002 IR	WFS Mission Requirements Document ftp://ftp.asc-csa.gc.ca/users/TRP/pub/Wildfiresat/
AD-02	CSA-WFS-RD-0001 Draft	WildFireSat – Product Assurance Requirements ftp://ftp.asc-csa.gc.ca/users/TRP/pub/Wildfiresat/
AD-03	CSA-ST-GDL-0001 Rev. D	Technology Readiness Levels and Assessment Guidelines ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/
AD-04	CSA-WFS-CO-0001 Draft	Concept of Operation ftp://ftp.asc-csa.gc.ca/users/TRP/pub/Wildfiresat/
AD-05	CSA-WFS-TN-0001 IR	WildFireSat Requirements Trade-off Criteria ftp://ftp.asc-csa.gc.ca/users/TRP/pub/Wildfiresat/
AD-06	CSA-SE-PR-0001 Rev. B	Systems Engineering Methods and Practices ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/
AD-07	CSA-SE-STD-0001 Rev. A	Systems Engineering Technical Reviews Standard ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/
AD-08	CSA-ST-RPT-0003	Technology Roadmap Worksheet ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/
AD-09	CSA-ST-FORM-0003	CTE Identification Workbook ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/
AD-10	CSA-ST-FORM-0004	TRRA Summary Report ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/

2.2 REFERENCE DOCUMENTS

The following documents and revision level are for reference only. They provide additional information or guidelines that either may clarify the contents or are pertinent to the history of this document.

TABLE 2-2 – REFERENCE DOCUMENTS

RD No.	Document Number	Document Title
RD-01	CWFMS-TN-005-NGCca	Phase 0 CWFMS Mission Concept Description Document Attachment 1 (Livelink 27605605)
RD-02	CWFMS-TN-006-NGCca	Phase 0 CWFMS System Design Document Attachment 2 (Livelink 27599738)
RD-03	CSA-MICRO-RD-0002	CWFMS User Requirements Document (URD) (Livelink 28255003) ftp://ftp.asc-csa.gc.ca/users/TRP/pub/Wildfiresat/

3 WORK REQUIREMENTS

The following sections describe the work that must be accomplished by the Contractor.

The following activities are described in relation to specific deliverables required by this SOW. The Deliverables and Contract data requirements list (CDRL) as well as their associated Data Item Description (DID) can be found in Appendix A and B, respectively.

CSA will make available applicable and reference documents as identified in sections 2.1 and 2.2, but the Contractor must take necessary steps to protect data and information. A Non-Disclosure Agreement (NDA) will be required in order to obtain reference documents [RD-01], [RD-02] and [RD-03]. The NDA should include all subcontractors.

3.1 PHASE A MANAGEMENT (WBS 1.1)

3.1.1 Phase A Management Plan (WBS 1.1.1)

The Contractor must develop and implement the Phase A Management Plan (CDRL-1), which must be provided with the proposal.

The Phase A Management Plan is used to:

- Guide the Phase A execution;
- Document phase planning assumptions;
- Document phase planning decisions regarding alternatives chosen;
- Facilitate communications amongst stakeholders;
- Define key management reviews as to content, extent and timing;
- Provide a baseline for progress measurement and control; and
- Provide the tools and mechanisms to ensure integration of project information from the different sub-contractors as applicable (integrated schedule, integrated WBS, integrated cost estimate, integrated risk assessment).

3.1.2 Contractor Work Breakdown Structure (CWBS) and Description (WBS 1.1.2)

The work must be planned, controlled and directed according to the CWBS and associated CWBS Dictionary to be provided with the proposal (CDRL-2). The CWBS Dictionary defines the work to be done against each WBS element identified in the CWBS, by means of a Work Package Description (WPD) for each such element.

3.1.3 Phase A Schedule (WBS 1.1.3)

The Contractor must prepare a detailed schedule based on the CWBS for all the work to be performed under this contract. The initial schedule must be included in the Phase A Management Plan and updates must be provided at review meetings.

The schedule must be at a level sufficient to control and report on the work required by this SOW.

The schedule must show dependencies between tasks, durations and critical path.

The schedule must be provided in the original format used by the Contractor to generate it (e.g. MS project, PS8, etc.).

The schedule must include the milestones listed in Table 3-1.

If applicable, the schedule should integrate the sub-contractor schedules.

3.1.4 Milestone Reviews (WBS 1.1.4)

For all meetings, an agenda must be prepared by the Contractor and submitted to the CSA Technical Authority (CSA TA) prior to the meeting date. The Contractor must record the minutes of all meetings and submit them to the CSA (TA) within 3 working days of the meeting, for approval.

Meeting minutes must summarize actions to be taken and decisions made regarding items on the agenda. However, the minutes are not an *in extenso* transcription of the discussions that may have taken place. For that reason, the update of the list of actions to be taken and of the list of decisions made at a meeting may serve as the meeting minutes.

Table 3-1 shows the Phase A milestone reviews and their planned occurrence and location.

TABLE 3-1 – PHASE A MILESTONE REVIEWS

Milestones	Date	Location
Contract Award (CA)	Target: June 2019	N/A
Kick-off Meeting (KOM)	CA + 2 weeks	CSA
Preliminary Conceptual Design Review (Pre-CoDR)	CA + 4 months	CSA
Conceptual Design Review (CoDR)	CA + 7 months	Contractor
System Requirements Review (SRR)	CA + 11 months	CSA

3.1.4.1 Kick Off Meeting (KOM) (WBS 1.1.4.1)

The Contractor must organize a KOM with the CSA Project Manager at the CSA as indicated in Table 3-1. The purpose of the KOM is to introduce the Contractor and CSA teams, and for the Contractor to present the contractor's concept and key points, present the phase A management plan, review the scope of work, the schedule, and the basis of payment, and discuss any other topics as required. Additional information could be provided by CSA, as needed, to guide the contractor. All key participants under contract, including representatives from each major subcontractor, should attend. Attendance of some team members by telecom is acceptable. The contracted work must start when the contract starts; it is not pending the KOM.

3.1.4.2 Preliminary Conceptual Design Review (Pre-CoDR) (WBS 1.1.4.2)

The purpose of the Pre-CoDR is to perform an early review of the conceptual design as it applies to the mission architecture, to review the trade-off analyses performed (refer to Section 3.4.4 / WBS 1.4.4), and make a decision early in Phase A on key technical considerations. Each trade-off considered must be clearly presented with a recommendation for the way forward (CDRL-7). The system conceptual design is not expected to be complete at this review, however the status of major decision elements such as the payload definition, orbit, number of satellites, and coarse subsystem definition must be presented to reflect the recommendations of the trade-off analysis. It is acceptable to present competing options being considered where a design decision has not been finalized at this stage.

At the Pre-CoDR, the contractor can present suggested changes to MRD requirements that would still allow the mission objectives to be met but which could be beneficial for cost, risk or other considerations. No later than 2 weeks after the Pre-CoDR, the CSA will notify the Contractor if the suggested changes are accepted or not and release an updated version of the MRD if appropriate.

The preliminary assessment of the Product Assurance Requirements (AD-02) must also be presented (CDRL-15) (refer to Section 3.3.1 / WBS 1.3.1).

The criteria to pass this review is the disposition of all action items that have been raised prior or during the review, to the satisfaction of the CSA.

3.1.4.3 Conceptual Design Review (CoDR) (WBS 1.1.4.3)

The purpose of the CoDR is to describe the preliminary system conceptual design proposed to meet the mission requirements. The format of the review meeting will be a presentation to review the preliminary Conceptual Design (CDRL-11).

The contractor must present a baseline conceptual design aiming at compliance with all requirements of the MRD (AD-01) and reflecting the results of the contractor's trade-off analyses. Any non-compliance must be flagged and suggestions to modify the mission requirements to ease up system implementation can be made by the contractor.

No later than 2 weeks after the CoDR, the CSA will notify the Contractor if the suggested changes are accepted or not and release an updated version of the MRD if appropriate.

The Contractor must identify the critical technologies from the Technology Readiness and Risk Assessment (TRRA, CDRL-8) and a plan and schedule for qualification of these items at the part, subsystem and/or system level.

In addition, the Contractor must present their Verification Approach (CDRL-16) for review, and it must demonstrate that the chosen model philosophy and proposed test sequence will meet the qualification and verification needs of the program.

One of the criteria to pass this review is the disposition of all action items that have been raised during the review, to the satisfaction of the CSA.

3.1.4.4 System Requirement Review (SRR) (WBS 1.1.4.4)

The Contractor must prepare and conduct an SRR meeting. The purpose of the SRR is to demonstrate the validity of the system requirements and the project readiness to proceed with the preliminary design.

The Contractor must present a conceptual design update, identifying any changes since the CoDR (if applicable), as well as the System Concept of Operations, including Operations Requirements derived therein, and the System Requirements.

The SRR must meet the objectives, entry and exit criteria detailed in Sections 8 and 9 of the Systems Engineering Technical Reviews Standard (AD-06). Sections 8 and 9 present the entry and exit criteria for the Operational Requirements Review and System Requirements Review respectively. Operational requirements must be included at the SRR in lieu of a separate review. The SRR must include as a minimum the CDRLs as per the due date and version in Table A-1.

The objectives of the SRR are summarized as follows (Reference AD-06):

1. The mission requirements have been logically and fully flowed down to the system requirements (refer to section 3.4.7);
2. The system, environmental, design and interface requirements have been defined, and are verifiable;
3. The system conceptual design is compatible with the system requirements and is feasible within appropriate margins (mass, power, data rate, etc.);
4. The Concept of Operations and the system requirements are clearly compatible, by demonstrating that there are no discrepancies between them.
5. External interface requirements have been defined;
6. Internal interface requirements have been characterized;
7. The preliminary verification approaches, test planning and model philosophy are defined;
8. The technical, cost, schedule and programmatic risks have been analyzed, quantified and viable mitigation plans have been identified;
9. The updated Product Assurance Requirements (PAR) (refer to Section 3.3.1) have been met;
10. Substantiated and validated life-cycle costs and project schedule have been established; and
11. The execution of the Mission Development Plan can be reasonably expected to result in the successful completion of the project within imposed cost and schedule constraints.

To pass the SRR, all action items that have been raised prior to or during the reviews must be closed and all CDRLs be accepted.

The SRR must be conducted in two parts, and may be conducted as two separate meetings:

1. Technical Review and;
2. Programmatic and Cost Review.

The baseline concept and the enhanced AoI concept (see WBS 1.4.9) must be presented at the reviews.

3.1.5 Progress Reporting and Technical Interchanges (WBS 1.1.5)

The Contractor must conduct bi-weekly project status meetings with the CSA to review the project status (scope (WBS), cost, schedule, risk) and to resolve unforeseen and urgent issues. As a minimum, the CSA TA and the Contractor Project Manager will participate. Additional participants will be selected on a need-basis, depending on the agenda.

The contractor must also support Technical Interchange Meetings (TIM), scheduled as required, to discuss technical topics and issues requiring resolution. The contractor and required subcontractors (determined case-by-case) must attend each TIM. CSA representatives and members of the U&ST will attend as appropriate. The agenda of each TIM will be determined during the course of the contract. The Contractor is asked to plan for 4 TIMs. These TIMs will be scheduled in agreement with the Contractor during the course of the contract.

TABLE 3-2 – PHASE A PROGRESS MEETINGS

Meetings	Frequency and Location
Project Status Meetings	• Bi-Weekly by telecon

Technical Interchange Meetings (TIMs)	• 4 TIMs spread over the contract,
	  • 2 at the Contractor,
	  • 2 by telecon

For the project status meetings, an agenda must be prepared by the Contractor and submitted to the CSA TA prior to the meeting date. The Contractor must record actions and decisions made during the meetings.

For the TIMs, an agenda will be prepared by the Contractor and concurred by the CSA TA prior to the TIM date. The Contractor will record actions and decisions made during the TIMs.

3.2 MISSION DEVELOPMENT PLAN (WBS 1.2)

The Contractor must develop a Mission Development Plan as per DID 0004 covering Phase B to E and the duration should not exceed 48 months up to commissioning.

The Mission Development Plan shall reflect the baseline concept but may include options. Technical and costing assumptions related to the options should be clearly stated to allow an easy comparison with the baseline.

The contractor must respect a maximum mission cost of $31 M for contractor activities (all mission activities performed outside GoC organisations) during Phases B through D up to the completion of the commissioning (including launch cost) of the WFS mission, Goods and Services Tax or Harmonised Sales Tax extra, as appropriate.

It should be noted that the enhanced AoI concept design (Section 3.4.8) is not constrained by the cost cap.

The level of Canadian content is currently set at 80%. However, if there is important cost savings and/or risk reduction on the mission by reducing the level of Canadian content, the contractor is invited to provide the rationale and benefit of reducing the Canadian content at the CoDR and document it in the Mission Development Plan (CDRL-3).

3.2.1 Project Work Breakdown Structure (WBS 1.2.1)

The Contractor must provide a WBS and WBS dictionary (CDRL-2) for the complete project (Phases B to E). The WBS will be the baseline for the mission schedule and the cost estimate.

3.2.2 Project Schedule and Milestones (WBS 1.2.2)

The Contractor must provide a schedule covering all phases of the project. The timeline must include key milestones such as Preliminary Design Review (PDR), Critical Design Review (CDR), Integration and Test (including payloads integration onto the bus), Delivery, Launch and Commissioning (Refer to AD-06). This schedule must show dependencies between tasks, durations, critical path, long lead items and constraints. Any assumptions used to create the schedule must be clearly stated. This is part of CRDL-3 but the original file should be provided.

The Contractor must also include the expected deliverables associated with each milestone reviews (hardware, software and relevant documentation) and report it in the form of a table in CRDL-3.

3.2.3 Project Cost Breakdown (WBS 1.2.3)

The Contractor must provide a project Cost Estimate (CRDL-4) for all subsystems and mission phases (B-E). All assumptions used to create the estimate must be listed. Any options or de-scope options that are included must be clearly described. The Contractor must present an assessment of the sensitivity of the cost to the different requirement in the MRD. Based on the cost sensitivity analysis, the Contractor may present suggestions for modifications to the requirements in two categories:

- Requirements for which a significant cost saving would result with modest impact to the mission objectives; and
- Requirements that could be strengthened with minimal impact on mission cost.

The Contractor must also include the Operation Phase ROM Cost Estimate, starting after the commissioning in accordance with the System Concept of Operation (CDRL-10).

The enhanced AoI concept delta cost estimate should also be included in CDRL-4.

3.2.4 Development and Manufacturing Approach (WBS 1.2.4)

The contractor must include the following development and manufacturing approach elements in the Mission Development Plan (CDRL-3): implementation strategy, the industrial team, key assumptions and risks, the product assurance approach, the current technology development status of key system elements, model philosophies, the Assembly, Integration and Testing (AIT) approach and system verification approach.

As much as possible, the development plan should be based on components that are free of ITAR restrictions.

3.3 SAFETY & MISSION ASSURANCE (WBS 1.3)

3.3.1 Product Assurance Requirements (PAR) (WBS 1.3.1)

During Phase A, the Mission Product Assurance Requirements (PAR) will be reviewed and finalized for the purpose of Phase B/C/D planning and cost estimates. CSA has provided a baseline PAR document (AD-02). The CSA PAR is based on the a mission life of two (2) years with a goal of five (5) years. The parts assurance level requirement is based on a typical space mission duration and includes screening, qualification at part level and lot related radiation testing.

CSA is aware of the challenges and constraints that come with the design and build of microsatellite missions where state of the art size, weight, speed, memory and other performance characteristics are essential to the mission or when schedule is critical.

The contractor must review the PAR and present an assessment at the Preliminary Conceptual Design Review. This assessment must include at minimum:

1. Identification of requirements that the contractor recommends for modification or removal, with accompanying justification;
2. Identification of requirements that are significant cost and/or schedule drivers and proposed alternatives. An estimate of the cost and/or schedule impact must be provided for these cases, with assumptions stated;
3. An assessment of mission risks associated with any recommended changes or removals;
4. Proposed alternatives to all requirements recommended for modification;
5. A recommended minimum list of PA CDRL documents required for Phases B through D to verify, review and approve the design, product assurance, assembly, integration, testing and safety activities; and
6. Detailed review of the EEE parts requirements to address the following:
    a) Review the CSA PAR EEE parts requirements and based on the mission duration and orbit recommend a parts assurance level.
    b) For a non-standard part (standard space qualified part is defined in the CSA PAR), the contractor must consider and recommend the EEE part program requirements and the applicable screening and qualification requirements by part package or type. The screening and qualification requirements should be based on Military/NASA/ESA standards.
    c) Provide the justification, rationale and associated mission risks for each EEE part requirement..

The contractor must provide the recommendations and comments of the CSA PAR (CDRL-15) as described in DID 0013.

A follow-up TIM (refer to Table 3-2) could be used for further discussion of PAR updates prior to finalization.

CSA will release a PAR update, no later than one month after the CoDR to be considered as the baseline for Phase B/C/D planning and cost estimates. Further updates may be made up to the SRR. At the end of Phase A, the final PAR must be compatible with the Mission Development Plan (CDRL-3) and the Mission Concept (CDRL-11).

3.4 SYSTEM ENGINEERING WP (1.4)

3.4.1 Technology Readiness and Risk Assessment (TRRA) and Development Plan (WBS 1.4.1)

The TRRA is used to assess project status and technical risks, and to guide definition of risk reduction work in the current and subsequent phases. As part of the TRRA, the Contractor must perform the following:

1. The first assessment is to be provided as an initial release based on the most up to date concept available at the Conceptual Design Review (CoDR). The objective is to propose comprehensive risk mitigation development activities arising from this assessment, as well as related decision points, and to identify critical path activities. The proposed plan must identify development plans for all mission phases, but must highlight in particular any development activities that are recommended to begin prior to Phase B and are out of scope of the Phase A SOW.
2. An updated assessment must be performed on the final Phase A concept, following the CoDR. It must be delivered at the SRR. The objective of this assessment is to update and fully identify risk mitigation development needs for future phases. These development needs must be part of the mission cost and included in the final release of the Mission Development Plan.

The assessment must be performed in accordance with the requirements of the CSA Technology Readiness and Risk Assessment Guidelines (AD-03) to formally document the system technology status. The Contractor must produce a TRRA Standalone Report (CDRL-8).

The Contractor must also provide a Technology Development Plan (CDRL-9) including the required technology developments to meet mission needs, and a plan and timeline to reach TRL 6 and 8. The Technology Development Plan may be provided as part of the TRRA Stand Alone Report (CDRL-8), as part of the Mission Development Plan (CDRL-3), or in Contractor Format if it meets or exceeds the intent of CDRL-9.

3.4.2 System Concept of Operations (WBS 1.4.2)

The Contractor must produce a System Concept of Operations (CDRL-10) as per DID-0006. A Draft Concept of Operations (AD-04) is provided and should be considered a baseline that describes existing government infrastructure, interfaces, and relationships. The contractor must develop the System ConOps based on this baseline and can propose alternative concepts of operations. Alternatives that do not make use of the government infrastructure (e.g. turn-key solutions) may be proposed. Any alternative concept must be provided with cost figures for comparison to the AD-04 baseline.

3.4.3 System Conceptual Design (WBS 1.4.3)

The Contractor must develop a conceptual design of the WFS mission. This conceptual design must be presented in draft form (presentation only) at the Preliminary CoDR. The conceptual design must be documented in the System Conceptual Design Document (CDRL-11), and will be reviewed at the CoDR in its preliminary form, and at the SRR in its final form. In addition to the description of the system conceptual design, supporting documentation as listed in the following sections must also be developed.

3.4.3.1 Conceptual Design (WBS 1.4.3.1)

The conceptual design (part of CDRL-11) must include an overall system description and architecture, including the space segment (including the payload and all satellite bus subsystems), the ground segment and the launch segment.

The Contractor must demonstrate the feasibility of the design and how the design can meet the mission requirements. The conceptual design must include, but not be limited to:

- Payload architecture and operation;
- Focal plane array;
- Radiometric and data co-registration accuracies;
- Orbit selection;
- Coverage Area, Revisit Time;
- Ground Station Operations/Telemetry, Tracking & Command (TT&C);
- Ground Station Access, Data Delivery;
- Frequency allocation/management;
- Bus and subsystem design and selection; and
- Launcher.

The system conceptual design must be tailored to meet the mission requirements with appropriate margins (mass, power, data rate, etc.). It assists in finalizing the design of the system and allocating the requirements to subsystems, demonstrating the design's feasibility, and supporting programmatic estimates. System-level requirements will then be defined to meet the mission conceptual design.

The Contractor shall demonstrate compatibility of its proposed concept with two different launchers or spacecraft platforms onto which the WFS payload can be hosted.

3.4.3.2 Product Breakdown Structure (WBS 1.4.3.2)

The Contractor must establish a product tree to define the functional decomposition of the WFS into subsystems. The PBS must use a unique identification name for each structure node. This identification name must be used to identify documents and work packages related to the corresponding node. The same structure may be used for the TRRA. The product breakdown structure must be documented as part of CDRL-11.

3.4.3.3 Compliance Matrix (WBS 1.4.3.3)

A Compliance Matrix must be included in CDRL-11 and perform the following functions:

1. Establish the traceability between the concept, system requirements, WFS Mission requirements (AD-01) and the PAR (refer to section 3.3.1).
2. Demonstrate compliance of the mission concept with the requirements.
3. Show the verification method(s) planned for verifying compliance in future phases for each requirement as per SE Methods and Practices (AD-06).

3.4.3.4 Analyses (WBS 1.4.3.4)

Analyses are required in order to support the understanding of different design choices, budgets and to predict the performance of the different subsystems. Detailed analyses must be provided to demonstrate that the mission concept can feasibly meet each requirement, including Phase A margins.

The System Conceptual Design Document (CDRL-11) must present the analyses performed, main results and problems encountered. The conceptual design document presents a summary of the analyses. Detailed analysis should be provided in dedicated Technical Notes (CDRL-12) in Contractor's format.

3.4.3.5 Engineering Budgets and Margins (WBS 1.4.3.5)

Budgets play a central role from a systems engineering standpoint. CDRL-11 (the Conceptual Design) states that budgets must be presented on a per-subsystem basis.

The Contractor must create preliminary payload and subsystem budgets defining the performance and functional requirements for the WFS mission, taking into account applicable bus interfaces and budget restrictions. A summary of the engineering budgets and Technical Performance Measurements (TPMs), margins, and their allocation to subsystems must be provided in CDRL-11.

The Margin Philosophy for use in Phase A of the WFS mission is described in Appendix C. The Contractor must respect the SRR System Margins enumerated in Table C-1 for the system conceptual design.

Engineering budgets presented must include at minimum:

- Mass Budget
- Power Budget
- Link Budget(s) – Each link to be used, i.e. Uplink, TTC & Payload Downlinks
- Data Budget
- Pointing Budget
- Geo-Referencing Budget
- Instruments Budgets (Bands, Noise, Gain, and Calibration Frequency)

Additional budgets must be presented where necessary to demonstrate compliance to the mission requirements.

3.4.4 Trade-off Studies (WBS 1.4.4)

Trade-off analyses must be performed by the contractor per CDRL-7 to demonstrate that the conceptual design is the optimum choice for the mission. The Contractor must perform analyses and studies to optimize the system design, select between alternative design choices and determine the best allocation of requirements and resources between subsystems. During this analysis the contractor should maximize the satisfaction of goal requirements presented in the MRD (AD-01) to the extent possible within the available mission budget (Section 3.2). Goal requirements should be prioritized according to WFS Requirements Trade-off Criteria (AD-05). Phase E operations cost is also included as a weighted criteria in AD-05. The Contractor must identify key components that will drive the development and propose alternative solutions and suppliers. As a minimum, the following must be presented for each trade-off study:

1. Purpose of the study;
2. Cases considered;
3. Analysis description (alternatively, pros and cons);
4. Analysis results; and
5. Decisions/Recommendations.

At a minimum, factors to be considered in the trade-off studies must include:

- Radiometric measurement accuracy
- Calibration frequency
- Data co-registration accuracy
- Data dynamic range
- Detector throughput
- Spectral channel width
- Cost (including 5 years operations)
- Orbit
- Number of Satellites
- Bus Design / Selection / Provider
- Launcher
- Coverage of the AoI
- Payload Ground Pixel Size
- Payload Bands
- Payload Field of View
- Sensor Technology for each band.

It should be noted that although Phase 0 activities used a specific class and format of detector (linear arrays of microbolometer) for the midwave and long-wave bands, the Contractor can propose any alternative detector and detector format deemed useful to meet the mission requirements. The final selection of the detector will be strictly based on consideration relating to the quality of retrieved fire characteristics and mission development plan (Technology readiness Level, cost, risk, availability, etc.).

The contractor is invited to identify alternatives to any mission element, including requirements, that may result in significant benefits in overall mission cost, user outcomes, industrial outcomes, public outcomes, or other metrics. For example, the contractor should identify any alternatives that would position Canadian industry to become the market leader in providing fire remote sensing data in Canada and international markets.

In addition to identifying candidate launchers, the Contractor should investigate the possibility of hosting the WFS payload on another platform (government or commercial).

No later than two weeks after the review, CSA will inform the Contractor of preferred option(s) to be pursued for the remaining of the contract and possible changes to the Mission Requirements resulting from the suggestions made by the teams.

3.4.5 CAD Models (WBS 1.4.5)

The Contractor must deliver to CSA all CAD models produced during Phase A. The CAD models must be as per CDRL-13.

3.4.6 Verification Approach (WBS 1.4.6)

The Contractor must produce a preliminary verification approach, high level test planning, and model philosophy during Phase A (CDRL-16). This approach must be in accordance with the SE Methods and Practices (AD-06).

A significant part of the verification strategy is the space environmental qualification program. This section applies to Space Segment equipment only and addresses the process through which the System will be qualified for operation in the space environment. The space environmental qualification program comprises two major components:

1. Verification Philosophy; and
2. Model Philosophy.

The recommended approach for the Verification Philosophy and Model Philosophy will be reviewed at the CoDR.

3.4.7 System Requirements (WBS 1.4.7)

The Contractor must define and develop the WFS system requirements and document them in the System Requirements Document (SRD) per CDRL-14 and according to the directions, content and properties described in DID 0011. The SRD must clearly outline whether each requirement is driven by bus, payload, ground station or mission parameters. Where applicable, all requirements must identify implications to spacecraft bus development and associated bus requirements (i.e. payload vs. bus data storage and processing, attitude control, etc.).

The SRD must include a traceability matrix, showing the relationship between the System requirements, WFS Mission requirements (AD-01) and the PAR (refer to section 3.3.1).

3.4.8 Enhanced AoI Conceptual Design (WBS 1.4.8)

Once the baseline concept has been established at the Conceptual Design Review, the contractor must produce an enhanced AoI concept, which meets the requirements of Annex B of the MRD (AD-01), for each of the two extended AoIs: AoI-1 and AoI-2. This enhanced AoI concept should be derived from the baseline concept, with the added capability required to meet the enhanced AoI mission requirements. The contractor must provide a conceptual design for the enhanced AoI mission, updated engineering budgets, and a technical risk assessment. The contractor must provide all assumptions, constraints, and delta costing (as requested in Section 3.2.3) for this scenario. The technical outputs must be documented in a separate Enhanced AoI Conceptual Design Document (CDRL-17). Note that CDRL-17 must capture differences from the baseline system conceptual design produced in CDRL-11. Where information is unchanged from the baseline system concept, a reference to the appropriate document and section may be provided in lieu of restating the information.

The Enhanced AoI Conceptual Design must be presented in a draft version at the CoDR and in a final version at the SRR.

3.5 BUSINESS PLAN PERSPECTIVE

In line with the forward looking perspective to find a new business model to meet the needs of the Government of Canada, the Contractor is tasked to develop an innovative business model. Taking into consideration the work performed as part of this study, the Contractor is asked to elaborate on a potential commercial business perspective for delivering wildfire monitoring services to the GoC and other potential customers beyond Phase A.

The report (CDRL-18) must contain the following information:

1. Proposed business model description;
2. Partnering arrangement;
3. Roles and responsibilities;
4. Key assumptions;
5. Description of the proposed service taking into account the current needs in the MRD;
6. Timeline for the delivery of the service including all the steps (technical, programmatic, business);
7. Business income perspective;
8. Cost sharing arrangement;
9. Service price range and applicable conditions;
10. Conditions for success.

4 GOVERNMENT FURNISHED INFORMATION AND EQUIPMENT

There is no Government Furnished Information or Equipment required for this work.

5 DOCUMENT DELIVERABLES

The Contractor must prepare and deliver the documents as requested in the Appendix A, Table A-1.

5.1 DOCUMENT DELIVERABLES, FORMAT AND CONTENT

The Contractor must ensure that documents delivered comply with the general preparation instructions and applicable Data Item Description (DID) as found in Appendix B.

Alternatives to the DIDs document format, its content and its submission methods are acceptable to the CSA. However, the alternative Contractor format must cover the information stated in the DID.

Documents must be delivered in the original software application format, plus in Portable Document Format (PDF). One electronic copy of each deliverable document must be transferred to the CSA at the address and in the format specified in DID-0000. No paper copy is to be delivered, except when requested by the CSA TA.

5.2 DOCUMENTS APPROVAL

The CSA TA will provide approval or disapproval within ten (10) working days of receiving the document. In the event that a document is disapproved, the CSA TA will advise the Contractor in writing, as to the reasons for such disapproval. Such notification will include a full explanation of the reasons for the lack of approval and will direct the additions, deletions and/or corrections, which the CSA TA deems are required for approval. With this notification, the CSA TA will provide the allowable delay for re-submission.

6 ACRONYMS AND ABBREVIATIONS

AD	Applicable Document
AI	Action Item
AIT	Assembly, Integration and Testing
AODCS	Attitude & Orbit Determination & Control Subsystem
AoI	Area Of Interest
BB	Breadboard
C&DH	Command and Data Handling
CADM	Configuration And Data Management
CDR	Conceptual Design Review
CDRL	Contract Data Requirements List
CFS	Canadian Forest Service
CM	Configuration Management
CONOPS	Concept of Operations
COTS	Commercial Off The Shelf
CSA	Canadian Space Agency
CSA TA	CSA Technical Authority
CTE	Critical Technology Elements
CWBS	Contractor Work Breakdown Structure
DID	Data Item Description
DM	Development Model
ECCC	Environment and Climate Change Canada
EEE	Electronic, Electrical and Electromechanical
FMECA	Failure Mode Effect and Critically Analysis
FoR	Field of Regard
FoV	Field of View
GSE	Ground Support Equipment
HDR	High Data Rate
INR	Image Navigation and Registration
IDD	Interface Description Document
KoM	Kick-off Meeting
LEOP	Launch and Early Operation Phase
MRD	Mission Requirements Document
MRR	Mission Requirements Review
NRCan	Natural Resources Canada
NDA	Non-Disclosure Agreement

NRE	Non-recurring engineering
PA	Product Assurance
PAR	Product Assurance Requirements
PMP	Project Management Plan
PSRR	Preliminary System Requirements Review
PT	Product Tree
PSPC	Public Services and Procurement Canada
RD	Reference Document
RMP	Risk Management Plan
ROM	Rough Order Magnitude
SEE	Single Event Effect
SI	International System of Units
SOW	Statement Of Work
SRD	System Requirements Document
SRR	System Requirements Review
STDP	Space Technology Development Program
TA	Task Authorization
TIM	Technical Interchange Meeting
TN	Technical Note
TPM	Technical Performance Measurements
TRA	Technical Readiness Assessment Review
TRL	Technology Readiness Level
TRM	Technology Road Map
TRRA	Technology Readiness and Risk Assessment
TT&C	Telemetry, Tracking and Command
U&ST	Users and Science Team
URD	User Requirements Document
UT	User Terminal
WFS	WildFireSat
WBS	Work Breakdown Structure
WP	Work Package
WPD	Work Package Description

APPENDICES

A DELIVERABLES AND CONTRACT DATA REQUIREMENTS LIST (CDRL)

A.1 DATA DELIVERABLES

Data Deliverables must be delivered as per Table A-1. Draft versions are for Review only.

LEGEND

- **MILESTONES**
  - **KOM =** Kick-Off-Meeting
  - **Pre-CoDR =** Pre-Conceptual Design Review
  - **CoDR =** Conceptual Design Review
  - **SRR =** System Requirement Review

- **OTHERS**
  - **A =** For approval
  - **CF =** Contractor Format
  - **D =** Draft
  - **F =** Final
  - **IR =** Initial Release
  - **M =** Monthly
  - **P =** Preliminary (as per associated DID)
  - **R =** For review
  - **U =** Updated
  - **X =** As Required / As available

TABLE A-1 - CONTRACT DATA REQUIREMENTS LIST (CDRL)

CDRL No.	Category	Deliverable	DID No.	Proposal	KOM	Preliminary CoDR	CoDR	SRR	Approval Category
1	PM	Project Management Plan – Phase A	0001	IR					A
2	PM	WBS and Work Package Description – Phase A	0002	IR					A
3	PM	Mission Development Plan	0004				D	F	A
4	PM	Mission Cost Estimates	0003				D	F	A
5	PM	Meeting Documentation	0005		F	F	F	F	A
6	PM	BIP/FIP Disclosure Report	0009	IR				F	R
7	SE	Trade-off Studies/Analyses	CF			IR	U		A
8	SE	Technology Readiness and Risk Assessment Stand Alone Report	0010				IR	F	A
9	SE	Technology Development Plan	0011				IR	F	A
10	SE	System Concept of Operations	0006				D	F	R
11	SE	System Conceptual Design	0007			D	IR	F	A
12	SE	Analyses	CF			X	IR	F	A
13	SE	CAD Models	0008			X	IR	F	R
14	SE	System Requirements Document	0012					F	A
15	PA	Product Assurance Requirements (PAR) Assessment	0013			D	F	U	A
16	SE	Verification Approach	0014				D	F	A
17	PM/SE	Enhanced AoI Concept Design	0007				D	F	A
18	PM	Business Model	CF				D	F	R

B DATA ITEM DESCRIPTIONS

DID-0000 – General Preparation Instructions

PURPOSE:

This DID specifies:

a) format requirements for project documents and data delivered by the supplier in compliance with the Contract Data Requirements List (CDRL)

b) document and data delivery methods and communication of submission and receipt

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INSTRUCTIONS:

1. GENERAL REQUIREMENTS:

1.1. All documents and data must be written in the English language. The term "documents" includes change requests, change notices and requests for deviations and waivers.

1.2. All documents must include the following notification at the bottom of the cover page:

© Contractor's name, 2019

RESTRICTION ON USE, PUBLICATION OR DISCLOSURE OF PROPRIETARY INFORMATION

This document is a deliverable under contract no. _____ This document contains information proprietary to the Name of the Contractor, or to a third party to which the Name of the Contractor may have legal obligation to protect such information from unauthorized disclosure, use or duplication. Any disclosure, use or duplication of this document or any of the information contained herein for other than the specific purpose for which it was disclosed is expressly prohibited except as the Crown may otherwise determine.

1.3. Documents and data must be released by the supplier and submitted in native electronic format (Microsoft Word, Excel, MS Project, etc.) and in PDF format. Schedules must be submitted in Microsoft Project format (or equivalent) and PDF format.

2. FILE NAMING INSTRUCTIONS:

Document file names must contain as a minimum:

- Document Title including the acronym of the project WFS
- Document number
- Revision number

3. DELIVERY METHODS:

3.1. The method of document and data submission and receipt will be coordinated by CSA and the Contractor:

3.1.1. Documents and data may be delivered via

a. CSA PIE-ISEP document portal;

b. retrieval from the contractor's repository, once CSA has received a notification of the document's release and its location in the repository; or

3.1.2. Notifications of document availability must be sent to the CSA CM Receipt Desk: asc.bibliothequegc-cmlibrary.csa@canada.ca

3.1.3. Emails to indicate document availability are to contain:

a. in the "Subject" line, the project/program acronym or equivalent identifier and the CDRL number.

b. in the email text:

1) Document Number;

2) Document Revision;

3) CDRL Identifier;

4) Security Designation of the contents. Indicate if contents are subject to ITAR, when applicable.

5) TYPE: a 2-letter acronym. Example in Table below

Acronym	Description
MN	Minutes of meeting
PT	Presentation
PR	Progress Report

DID-0001 – Project Management Plan

PURPOSE:

The Project Management Plan (PMP) is used to guide both project execution and project control.

The PMP is used by the Government to assess the adequacy of the Contractor's plan for management of the work and to provide a basis on which to monitor and assess the progress of the work.

PREPARATION INSTRUCTIONS:

The PMP is used to:

- Guide the project execution;
- Document project planning assumptions;
- Document project planning decisions regarding alternatives chosen;
- Facilitate communications amongst stakeholders;
- Define key management reviews as to content, extent and timing; and
- Provide a baseline for progress measurement and project control.

When the Contract has specified delivery of another document that contains aspects of the required information, the PMP should summarize these aspects and refer to the other document.

The PMP must contain the following information, as a minimum:

1) Introduction

a) Project Objectives;

b) Scope of the Plan; and

c) Applicable and Reference Documents.

2) Project Integration Management

This section must describe the processes planned to be used to ensure that the various elements of the project are properly coordinated. It must describe:

a) The overall project management strategy;

b) How the plan will be executed; and

c) Overall change control mechanisms.

3) Project Scope Management

This section must describe the processes planned to be used to ensure that the project includes all the work required, and only the work required, to complete the project successfully.

4) Project Time Management

This section must describe the processes planned to be used to ensure timely completion of the project.

5) Project Cost Management

This section must describe the processes planned to be used to ensure that the project is completed within the approved budget.

6) Project Quality Management

This section must describe the processes planned to be used to ensure that the project will satisfy the needs for which it was undertaken.

7) Project Human Resources Management

This section must describe the processes planned to be used to make the most effective use of the people involved with the project.

8) Project Communications Management

This section must describe the processes planned to be used to ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information.

9) Project Risk Management

This section must describe the processes planned to be used to identify, analyze and respond to projects risks.

10) Project Procurement Management

This section must describe the processes planned to be used to acquire goods and services (“products”) from outside the Contractor’s organisation.

DID-0002 – WBS and Work Package Descriptions

PURPOSE:

The Work Breakdown Structure (WBS) is used during planning for estimating resources and scheduling the work. During the implementation phase, it is used for reporting and controlling costs and schedule.

PREPARATION INSTRUCTIONS:

The Contractor must provide an integrated Work Breakdown Structure (WBS) describing all the project elements that organise and define the total scope of the project including subcontracted work, and must be deliverable-oriented.

The Contractor must prepare and maintain a WBS Dictionary made up of Work Package Descriptions (WPDs) for every element to the lowest level of the WBS. Each WPD must include, as a minimum:

a) A unique identifier traceable to the WBS;

b) A title;

c) The name of the individual responsible for completion of the work;

d) The scope of the work package;

e) The start date and duration;

f) Required inputs and dependencies;

g) A description of every activity covered by the WPD;

h) Assumptions;

i) Output (deliverables);

j) Issue date;

k) Version number.

DID-0003 – Project Cost Estimates

PURPOSE:

To provide cost estimates for Phases B, C, D and E.

PREPARATION INSTRUCTIONS:

Cost Estimates

1. The cost estimates must be provided, in Contractor format, as follows:
   a) Bottom-up cost Estimate for Phase B
   b) Bottom-up cost Estimate for Phase C
   c) Bottom-up cost Estimate for Phase D
   d) Cost Estimate for Phase E
   e) Summary cost estimate that combines 1(a), 1(b), 1(c), and 1(d)

Bottom-Up Estimates

2. The estimates named in paragraph 1(a), 1(b), 1(c) and 1(d) of this DID must be based on a Cost Work Breakdown Structure.
3. For the cost estimates of Part 1, the following information must be provided for each element of the Cost Work Breakdown Structure, both by phase and by fiscal year, including inflation:
   a) Labor Hours in Person-Hours or Person-Days and in dollars;
   b) Non-Labor costs;
   c) Material costs;
   d) Purchased Equipment;
   e) Material Handling;
   f) Subcontracts Cost Breakdown;
   g) Travel and living;
   h) General & Administrative (G&A) expenses;
   i) Contractor overhead;
   j) Contractor profit; and
   k) Taxes.
4. For each of estimate 1(a), 1(b), 1(c) and 1(d) a numbered list of assumptions must be provided.
5. Risks (both technical and programmatic) must be identified and associated dollar value for each risk should risks materialize must be stated in the cost estimate. In addition, a weighted risk cost estimate must be included.

DID-0004 – Mission Development Plan

PURPOSE:

To describe how the project will be developed and what are the planning steps. This stand alone document will provide all the programmatic details on the project except the cost estimates that will be provided separately (refer to CDRL-4).

PREPARATION INSTRUCTIONS:

The Mission Development Plan shall follow the suggested table of contents. Where one of the items listed below is the subject of a separate document, the Plan shall merely include a pointer to that document.

TABLE OF CONTENTS

1. Introduction
2. Reference documents
3. Mission overview
4. Implementation strategies
   - 4.1 Key assumptions
   - 4.2 Product assurance approach
   - 4.3 System verification approach
   - 4.4 Current development status
   - 4.5 Model philosophy & Bread Board/Development Model
   - 4.6 Satellite simulator
   - 4.7 Selection of a mission development timeline
   - 4.8 Industry team
5. Implementation process
   - 5.1 Mission, payload and bus lifecycles
   - 5.2 Ground segment and operations lifecycles
6. Mission phases and milestones
7. Implementation schedule
8. Work Breakdown Structure (see DID 0002)
9. Deliverable items
10. Risk assessment (programmatic and technical) including the work done as part of WBS 1.4.1 on the technical risks
11. Long lead items list
12. Issues list that captures all the issues raised during the development of the phase A.
13. List of recommended CDRL for phases B to D.

DID-0005 – Meeting Deliverables

PURPOSE:

To identify the deliverables required for a meeting.

PREPARATION INSTRUCTIONS:

The meeting must contain the following deliverables, per contractor format:

a) Presentation, including agenda, delivered 3 business days before meeting;

b) Minutes, including meeting purpose, attendees, meeting location, decisions made with the rational, Action Items (AI), delivered 3 business days after meeting.

DID-0006 – System Concept of Operations

PURPOSE:

To define the overall end-to-end Concept of Operations.

PREPARATION INSTRUCTIONS:

This document must be prepared in accordance with standard ANSI/AIAA G-043B-2018 - Guide for the Preparation of Operational Concept Documents.

The Concept of Operations must contain the following information:

1. Introduction including the scope, the purpose and a list of assumptions (if any);
2. Description of the overall concept of operations that proves the feasibility of command and control, housekeeping and data acquisition, downlinking, turnaround time, processing, analysis and distribution and instrument calibration;
3. System operations requirements and constraints:
   a) System description,
   b) End-users description and requirements,
   c) System Health and Safety requirements,
   d) Programmatic and operational constraints,
   e) Relationship with other missions / programs,
   f) External dependencies or interfaces with other organisations;
4. Space segment characteristics including instrument monitoring and control, and instrument modes;
5. Ground segment characteristics including Command & Control and Data Reception for the commissioning phase and routine operations phase;
6. System operations concepts:
   a) Planning processes,
   b) Operations execution processes,
   c) Evaluation processes,
   d) Data Reception,
   e) Data Transfer,
   f) Data processing,
   g) Data turnaround time,
   h) Instrument calibration,
   i) Support processes,
   j) Operations team;
7. Operational Scenarios,
8. Commissioning.

DID-0007 – System Conceptual Design Document

PURPOSE:

In its preliminary form, to describe the preliminary system conceptual design proposed to meet the mission requirements.

In its final form, to describe the conceptual design of the system, to assist in finalizing the design of the system and allocating the requirements to subsystems, to demonstrate its feasibility and to support programmatic estimates.

PREPARATION INSTRUCTIONS:

NOTE: This DID comprises two sets of requirements: the first for the preliminary form of the document and the second for its final form.

PRELIMINARY FORM

The preliminary document must include the following:

1. An introduction including the scope, the purpose and a list of assumptions (if any);
2. A description of the overall system conceptual design;
3. A description of any detailed analysis, breadboard design and performance (field) testing, if applicable; and
4. A description of any trade-off studies performed.

FINAL FORM

The final document must include the following:

1. Introduction: recalling the major objectives and guidelines for the project;
2. Product Breakdown Structure (PBS);
3. Architecture, design and interfaces: giving a high level description of the architecture and design of the system and its subsystems, including internal and external interfaces;
4. Trade-offs: criteria definition, analysis, criteria results, decisions;
5. Design decisions: rationales for design choices;
6. Budgets: a summary of the engineering budgets and TPMs, and margins, their allocation to subsystems;
7. Drawings and schematics: architectural diagrams for the main aspects of the system (structure, electronics, power, communications, software, etc.) describing and referencing important design drawings such as functional interconnect diagrams, activity flow diagrams, ICDs;

8. Analyses: summarizing the analyses performed, main results and problems encountered; this is a summary of each full analysis report presented separately;
9. Tests: summarizing the tests to be performed to verify the performance and environmental requirements;
10. Operations concepts: summarizing the operations of the system in both nominal and contingency conditions;
11. Maintenance approach: describing the maintenance approach especially for maintainable items such as the spares for manned systems, flight software and ground systems;
12. Matrix: To demonstrate design compliance to requirements by providing clear link between design and requirements. Indication of design compliance, non-compliance and partial compliance;
13. Spacecraft and Payload 3-D CAD Models;
14. Two scenarios of WFS accommodations on a launcher; and
15. Optional: scenario for an accommodation of the WFS payload on a spacecraft platform (hosted payload approach).

DID-0008 – Computer-Aided Design (CAD) Models

PURPOSE:

To provide a 2D or 3D virtual model of a product to support the performance of various analyses (mechanical, electrical, thermal) and virtual testing.

PREPARATION INSTRUCTIONS:

All CAD models developed must be delivered.

Models must be delivered in the following formats:

a) Mechanical design: Native format & STEP AP203 (.stp);

b) Electrical design: .dsn, .sch, Pspice and Gerber formats;

c) Thermal Design: Native format & either TMG universal file format or I-Deas Archive file format;

d) Software design: UML 2.0 or XML;

e) Model-based Systems Engineering Model (if required): Artisan Studio

f) Optical design models: Zemax

g) Orbital analysis models (e.g. STK): Native Format

In cases where a different tool is used from the one CSA uses, the model and outputs must be supplied in native format in addition to the required format. For generic modeling and analysis that don't use a specialty tool, CSA will accept Matlab, Excel and MathCad format data. Where a highly specialized tool is used (e.g. bearing analysis, EMC analysis) delivery format must be negotiated with the CSA. Translation from the Contractor's tool to the required format is only acceptable where the results can be repeated in CSA's tool. Translation that corrupts the model, loses data, or produces data that is interpreted differently, is not acceptable.

Assumptions that are used must be stated, along with resulting limits on model accuracy.

DID-0009 – Background and Foreground Intellectual Property (BIP/FIP) Disclosure Report

PURPOSE:

The BIP/FIP Disclosure Report serves to identify FIP produced under the Contract with the CSA, as well as any BIP elements that were used to develop the FIP.

PREPARATION INSTRUCTIONS:

The Contractor must complete Table 1 for the report to be provided with the proposal (BIP). The report to be provided at the end of the contract must include Tables 1, 2 and 3 (BIP/FIP).

Background Intellectual Property (BIP)

Table 1 - Disclosure of Background Intellectual Property (BIP) brought to the project

BIP ID#	Project Element	Title of the BIP	Type of IP	Type of access to the BIP required to use/improve the FIP	Description of the BIP	Reference Documentation	Origin of the BIP	Owner of the BIP
Provide ID # specific to each BIP element brought to the project e.g. BIP-CON-99 *where CON is the contract acronym*	*Describe the system or sub system in which BIP is integrated (e.g. camera, control unit, etc)*	*Use a title that is descriptive of the BIP element integrated to the work*	*Is the BIP in the form of an invention, trade secret, copyright, design, patent?*	*Describe how the BIP will be available for Canada to use the FIP (e.g. BIP information will be incorporated in deliverable documents, software will be in object code, etc)*	*Describe briefly the nature of the BIP (e.g. mechanical design, algorithm, software, method, etc)*	*Provide the number and fill title of the reference documents where the BIP is fully described, The reference document must be available to Canada. Provide patent# for Canada if BIP is patented.*	*Describe circumstances of the creation of the BIP Was it developed from internal research or through a contract with Canada? If so, provide contract number.*	*Name the organization that owns the BIP. Provide the name of the subcontractor if not owned by the prime contractor.*

Foreground Intellectual Property (FIP)

Table 2 - Disclosure of the Foreground Intellectual Property (FIP) developed under the Contract

FIP ID #	Project Element	Title of FIP	Type of FIP	Description of the FIP	Reference documentation	BIP used to generate the FIP	Owner of the FIP	Patentability
Enter an ID # specific to each FIP element *e.g.FIP-CON-99* *where CON is the contract acronym*	*Describe the system or sub-system for which the FIP element was developed (e.g. a camera, ground control, etc)*	*Use a title that is descriptive of the FIP element.*	*Specify the form of the FIP e.g. invention, trade secret, copyright, industrial design, patent*	*Specify the nature of the FIP e.g. software, design, algorithm, etc?*	*Provide the full title and number of the reference document where the FIP is fully described. The reference document must be available to Canada*	*BIP referenced in table 1 e.g. BIP-CON-2, 15*	*Specify which organization owns the FIP e.g. Contractor, Canada* or Subcontractor.* *Provide the name of the subcontractor if not owned by the prime contractor.* **If Canada is the owner of the FIP, complete Table 3 below* *Provide reference to contract clauses that support FIP ownership.* *Provide reference to WPDs under which the technical work has been performed.*	*In the case where the IP is owned by Canada, indicate with an "X", any IP elements described is patentable and complete Table 3 only for this IP.*

Table 3 - Canada's Owned FIP Additional Information

FIP ID #	Title of FIP	Aspects of FIP that are novel, useful and non-obvious	Limitations or drawback of the FIP	References in literature or patents pertaining to the FIP	Has the FIP been prototyped, tested or demonstrated? (e.g. analytically, simulation, hardware)? Provide results	Inventor(s)	Was the FIP disclosed to other parties?
ID# should be same as corresponding FIP element in Table2	*Title of FIP should be same as corresponding FIP element in Table2*	*How is the FIP addressing a problem (useful) and what is thought to be novel in this solution (novel)?*	*Describe the limitations of present apparatus, product or process*	*Provide references in published literature or patents relating to the problem or subject if any.*	*Describe briefly how the process, product or apparatus performed during testing or simulation. Provide reference document # where the performance is compiled if applicable.*	*Provide name and coordinates of the person(s) who created the FIP*	*Has any publication or disclosure of the FIP or any of its elements been made to third parties? If so, provide when, where and to whom.*

DID-0010 – Technology Readiness and Risk Assessment with Stand Alone Report

PURPOSE:

The Technology Readiness and Risk Assessment (TRRA) Report, whether as a stand-alone document or incorporated into the project Technical report, is used to describe in a systematic and objective fashion, at a specific point in time (milestone) in the development process, the technological readiness of a system for a particular spaceflight mission, the criticality of the constituent technologies, and the expected development difficulty and program impact of achieving the remaining technology development steps.

The TRRA Report will document, for each of the Critical Technology Elements (CTEs) of the proposed concept, a high-level summary of the maturity of the technologies, the technology development difficulty and program impacts, and a recommended path forward to achieve the desired target technology maturity.

The TRRA Report is used to assess project status and technical risks, and to guide the definition of risk reduction work in following phases. It is a recommended deliverable at the end of Concept studies, and Phases 0, A, B, and optionally C.

When written as a stand-alone report, the TRRA report must include the information shown in the Preparation Instructions, below.

PREPARATION INSTRUCTIONS:

The TRRA Stand Alone Report must contain the following information, as a minimum:

1. Introduction
   This section should include:

   1.1. Brief Project Description;

   1.2. Purpose of Document (must include target TRL to be achieved);

   1.3. Scope.

   This section must also include

   1.4. Applicable Documents, which must include the following:

   a. TRRA Guidelines (CSA-ST-GDL-0001 and the revision used for the TRRA

   b. Reference or links to the relevant CTE Identification Workbook (CSA-ST-FORM-0003) and TRRA Summary Template (CSA-ST FORM-0004).

   1.5. Reference Documents (which must include the following):

   a. All evidence documents referred to in the body of report.

   1.6. List of Acronyms

2. Mission Description and Objectives
   Provide an overview of the mission, describing the key mission requirements and any assumptions.

3. Mission Environment
   Describe in detail the mission environment and any assumptions.

   This section should include a summary comparison table(s) between heritage and current mission environments with references to source documents.

4. Product Breakdown Structure
   Provide a PBS diagram showing the element hierarchy and element numbers.

   This section may include a PBS diagram annotated to show the Current TRL of each element and those identified as CTEs.

5. Technology Maturity Assessment
   Provide the results of the TMA. This may accomplished either by referencing a completed CTE Identification Workbook, or by presenting a table showing each PBS element and its assessed Previous and Current TRLs, with brief rationales for the choices.

6. Critical Technology Elements (CTEs)
   Each CTE should be discussed in detail, including information such as:

   a) Description of each CTE;

   b) Rationales for selecting the CTEs. Reference may also be made to a completed CTE Identification Workbook; however, the TRRA report should contain more detail.

   c) Rationales for selecting the Development Difficulty and Program Impact factors.

   d) A discussion, for each CTE, of the path forward to increasing the TRL to the desired value (e.g., Target and or beyond). This should address the Technology R&D Options, and the risks, cost, and feasibility of advancing the technology.

7. TRRA Summary and Recommendations
   This section must include a Summary table of results with columns covering:

   PBS # ;
   Element Name;
   Assessed TRL values (Target, Previous, Current):
   and for CTEs, the Development Difficulty and Program Impact factors.

This section must also summarize the recommended technology development activities (Path Forward) with timelines and expected costs. It can refer to a separate Technology Roadmap Worksheet (CSA-ST-RPT-0003, see AD-08)[4] and a Technology Development Plan report, if appropriate.

8. Conclusions
   This section should include a statement regarding the current overall state of the TRRA assessment and identify any open work.

9. Appendix
   This section must include, or refer to an attachment, includes the CTE Identification Workbook (CSA-ST-FORM-0003) (AD-09), and (if used) the TRRA Summary Report (CSA-ST-FORM-0004) (AD-10). Templates for these documents can be obtained from the FTP site:

   ftp://ftp.asc-csa.gc.ca/users/TRP/pub/TRRA/.

[4] If using Revision A of the Technology Roadmap Worksheet, replace the parameters TNV and R&D3 with Program Impact Factor and Development Difficulty Factor, respectively.

DID-0011 – Technology Development Plan

PURPOSE:

To define and detail all technologies development activities to be performed in the early phases of the mission in order to maximize the chances of success in achieving the mission objectives within cost and schedule constraints.

PREPARATION INSTRUCTIONS:

The Technologies Development Plan must include functional and performance requirements, and a roadmap (mapping TRL to a timeline coordinated with the mission development schedule) for each Critical Technology.

The Technologies Development Plan must be developed in conjunction with the Technology Readiness Assessment Report and the Technology Trade-off Studies.

The Technologies Development Plan shall include the following data, tailored to the specific needs of each project. The Contractor's format is acceptable.

1. SCOPE

This DID establishes the content, format, maintenance, and submittal requirements for the Technologies Development activities. It is applicable to all technologies used in the system.

2. CONTENTS

This plan shall contain the following information, as a minimum:

a) A description of the Contractor's organisation, methods, and control to implement the technologies development work;

b) A description of the technologies development activities to be performed, detailing benefits, constraints, and objectives;

c) A detailed time-correlated sequence of technologies development milestones from contract-start date through to completion of design certification;

d) A description of support equipment, software, facilities, and tooling necessary for the technologies development activities;

e) A description of technologies development and breadboard tests planned at equipment level;

DID-0012 – System Requirement Document

PURPOSE:

To define the functional, performance, environmental and other requirements for a given system, subsystem, unit, module or assembly.

PREPARATION INSTRUCTIONS:

The requirements documents must define the requirements on the subject item.

The Requirements Document must comprise a number of sections, each defining a specific set of requirements. The document must address all of the following requirement areas, as a minimum:

1. Functional Requirements;
2. Performance Requirements;
3. External Interface Requirements (unless done in a separate document);
4. Design Requirements;
5. Construction Requirements;
6. Qualification and/or Verification Requirements;
7. Packaging Requirements, if any;
8. External Stowage Requirements, if any;
9. Operational Requirements, if any;
10. Ground Support Equipment Requirements, if any (unless done in a separate document); and
11. Other applicable requirements types.

Environmental requirements should address the following, as appropriate:

1. Environmental test factors;
2. Environmental Design and Test Requirements:
   a) Structural/Mechanical Design Requirements,
   b) Electrostatic and EMC Design requirements,
   c) Transport and Ground Environments;

Requirements must conform to the following standards for quality:

a) They must be unambiguously clear to the intended readership;
b) Each requirement must have a unique identifier (e.g. An id number or paragraph number);
c) They must not define design solutions;
d) They must be verifiable, preferably by tests or demonstrations;
e) They must specify the conditions under which they apply; and
f) Performance requirements must be quantified.

Requirements documents must cite applicable standards and parent requirements, and must make clear the priority sequence of the applicable documents.

DID-0013 – PAR Assessment

PURPOSE:

The contractor must review the PAR and present an assessment of each of the PA requirements.

PREPARATION INSTRUCTIONS:

The assessment should be provided in a spreadsheet format with the following information per PA requirement (AD-02):

CSA PAR requirement identifier	The CSA PAR requirement text	Contractor compliance (Yes/No)	If no, proposed change	Justification for change	Risk Impact on the mission	Cost/schedule impact on the mission	Other comment
RQT 001							

This assessment must also include at minimum:

- A recommended minimum list of PA CDRL documents required for Phases B through D to verify, review and approve the design, product assurance, assembly, integration, testing and safety activities.

Detailed review of the EEE parts requirements review in accordance with the SOW section 3.3.1 (item 6).

DID-0014 – Verification Approach

PURPOSE:

To describe the methods and activities planned to verify that the system or a unit conforms to its requirements, and to provide the verification matrix that traces the requirements to each activity.

PREPARATION INSTRUCTIONS:

The Verification Approach shall, as a minimum:

1) Include a unique identification number, title, and brief overview of the system to which the Verification Plan applies;
2) Verification Philosophy
   a) Provide an overview of the approach to verification and validation methodology to be employed on the program;
   b) Define the verification activities that will prove, at each phase, that the system and subsystems progressively meet all the specified requirements, including functional, performance, interface, environmental, etc. requirements;
   c) Describe the methods and techniques to be used to measure, evaluate, and verify the system; this is to include characterization of the system behaviour that is not controlled by requirements and but is important for understanding the system, and establishing the actual values of parameters that exceed requirements;
   d) Describe the methods and techniques to be used to calibrate the system, including the payload;
   e) Show how requirements verification progresses up the Hierarchical Tree from item and subsystem verification to system verification, and show that every requirement is verified using a Verification Matrix;
   f) Explain how requirements verification will be traced from the upper level requirements through all mid-level documents to the closure documents (test results, analyses, similarity reports);

   For each requirement:

      a. The requirement document number and requirement identifier;
      b. The requirement description;
      c. Verification method, indicating level-of-assembly;

3) Model Philosophy
   a) Describe the use of physical models that will be produced for test and verification. CSA-SE-PR-0001 defines various models that may be part of the model philosophy (e.g. Breadboard Model, Engineering Model, ProtoFlight Model, etc.)

4) Define the requirements for supporting facilities, analysis tools and test equipment, both existing and needing to be constructed; assumptions on the use of government-furnished equipment (GFE) in testing are to be documented, including:
    a) The specific equipment and materials needed,
    b) The configuration of the equipment to be used,
    c) Any requirements on modification or upgrade of the GFE,
    d) The location in which it is to be used; and
5) Define the schedule for verification activities (especially high-impact items such as full-system testing), and the schedule requirements for the government furnished facilities (e.g. DFL).

The scope of the document shall include:

1) Integrated Spacecraft testing for performance and environmental compliance;
2) Spacecraft-Ground Segment compatibility testing, to check the two are compatible in terms of command and telemetry in both RF and baseband aspects;
3) Commissioning phase testing; operational flow and processes for the commissioning phase shall be defined;
4) Life testing for life-limited items such as mechanisms and batteries;
5) Life verification for critical components such as detectors and batteries; and
6) Technical and operational qualification of the Ground segment; technical qualification means that the system is verified against requirements, i.e. Equivalent to verification; operational qualification means that the system has been exercised under realistic conditions and functions as intended (also known as validation).

This plan may be broken into sub-documents of more manageable size.

For each defined verification activity, the plan shall contain, as a minimum:

1) An identification number and a description of the activity;
2) The objective, including requirements to be verified;
3) A verification method, verification level (e.g. system, subsystem or unit) and verification milestone (e.g. PDR, CDR, AR, etc.);
4) Supporting hardware and software; and
5) Assumptions and constraints that apply to the activity.

C MARGIN PHILOSOPHY

Shows the system engineering margins that are envisioned for the WildFireSat development.

TABLE C-1 – SYSTEM ENGINEERING MARGINS

Item	SRR Margin (Phase A)	PDR Margin (Phase B)	CDR Margin (Phase C)	Acceptance Margin (Phase D)
Mass	50% new design 30% iterative design 10% existing	30% new design 15% iterative design 5% existing	10% new design 5% iterative design 2% existing	0
Power (EOL Requirement)	50% new design 30% iterative design 10% existing	30% new design 15% iterative design 5% existing	10% new design 5% iterative design 2% existing	0
Volume	50% new design 30% iterative design 10% existing	30% new design 15% iterative design 5% existing	10% new design 5% iterative design 2% existing	0
Performance measures (payload data quality)	50% new design 30% iterative design 10% existing	30% new design 15% iterative design 5% existing	10% new design 5% iterative design 2% existing	0
Computer Resources	200%	100%	50%	40%
Communication Bandwidth	200%	100%	50%	40%
RF Link Margin	10 dB U/L 3 dB D/L			
Structural Margins (beyond required Factor of Safety)	100%	50%	0	0
Heat Flows and Heater Sizing	80%	50%	30%	30%
Temperatures vs Allowable Limits	15ºC			
Thermal Stability	50%	30%	20%	10%
Mechanisms minimum margin of safety or torque margin	300%			

ANNEX B – BASIS OF PAYMENT

B1 Work performed under the Contract

This section applies to the Work described in the Statement of Work (SOW) in Annex ''A'' to which this basis of payment applies.

Prices are to be presented in Canadian funds, Canadian customs duties and excise taxes included (if applicable), applicable sales taxes extra and shown separately (if applicable), FOB destination (Canadian Space Agency, Longueuil, Quebec).

The schedule of milestones for which payments will be made in accordance with the Contract is as presented in the Table B1 below.

Table B1 – Schedule of payment milestones

Payment Milestones No.	Deliverables Description	Months After Contract Award (MACA)	Percentage of Overall Cost	Payment
1	Preliminary Conceptual Design Review (Pre-CoDR) Meeting completed and accepted by the CSA, in accordance Section 3.1.4.2 of Annex A.	**4**	30%	
2	Conceptual Design Review meeting completed and accepted by the CSA, in accordance with Section 3.1.4.3 of Annex A.	**7**	30%	
3	System Requirement Review (SRR) meeting, background and foreground intellectual property reports accepted by CSA, in accordance with Section 3.1.4.4 of Annex A.	**11**	40%	

Sub-total:	$
Goods and Services Tax (GST) @ 5%:	$
Quebec Sales Tax (QST) @ 9.975%:	$
Total Firm Fixed Price	**$**

B2 Work subject to Task Authorizations

This section applies to the performance of the Work, on a as required basis, and within the scope of the project that will be subject to the Task Authorizations Process.

B.2.1 Basis of Payment – Work subject to Task Authorizations

Work performed under Task Authorizations will be performed on a Firm-Fixed Price Basis (FFP) as described and authorized by the Contracting Authority using the applicable ''Support Task Authorization Form'' (Annex 'G'). Work performed under Task Authorizations will be paid in accordance with Section 7.7.2 of the Contract and subject to the all-inclusive labour rates defined below.

Labour Category	All-inclusive Firm Fixed Hourly Price
Senior Engineer/ Program manager	____/Hour
Engineer	____/Hour
Junior engineer	____/Hour
Administrative Support	____/Hour

ANNEX C – SECURITY REQUIREMENTS CHECK LIST

The Security Requirements Check List is reproduced on the following page as an attachment to this document.

Government of Canada / Gouvernement du Canada

Contract Number / Numéro du contrat
9F045- 20190018
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: **Canadian Space Agency**	2. Branch or Directorate / Direction générale ou Direction: Space Utilization
3. a) Subcontract Number / Numéro du contrat de sous-traitance: TBD	3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant: TBD

4. Brief Description of Work / Brève description du travail
Completion of work in the WildFireSat Phase A Statement of Work (SOW).

5. a) Will the supplier require access to Controlled Goods? Le fournisseur aura-t-il accès à des marchandises contrôlées?	☑ No / Non	☐ 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?	☑ No / Non	☐ 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)	☐ No / Non	☑ 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.	☑ No / Non	☐ 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?	☑ No / Non	☐ 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		
No release restrictions / Aucune restriction relative à la diffusion ☑	All NATO countries / Tous les pays de l'OTAN ☐	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) ☐

Government of Canada / Gouvernement du Canada

Contract Number / Numéro du contrat
20190018
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? ☑ No / Non ☐ Yes / Oui
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS?
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? ☑ No / Non ☐ Yes / Oui
Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate?

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

☑ RELIABILITY STATUS / COTE DE FIABILITÉ	☐ CONFIDENTIAL / CONFIDENTIEL	☐ 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 EMPLACEMENTS			

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? ☑ No / Non ☐ Yes / Oui
Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail?
If Yes, will unscreened personnel be escorted? ☐ No / Non ☐ Yes / Oui
Dans l'affirmative, le personnel en question sera-t-il escorté?

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? ☐ No / Non ☑ Yes / Oui
Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS?

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

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? ☑ No / Non ☐ Yes / Oui
Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ?

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? ☐ No / Non ☑ Yes / Oui
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?

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

Government of Canada / Gouvernement du Canada

Contract Number / Numéro du contrat
20190018
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 / CONFIDENTIEL	SECRET	TOP SECRET / TRÈS SECRET	NATO RESTRICTED / NATO DIFFUSION RESTREINTE	NATO CONFIDENTIAL / NATO CONFIDENTIEL	NATO SECRET	COSMIC TOP SECRET / COSMIC TRÈS SECRET	PROTECTED / PROTÉGÉ A	PROTECTED / PROTÉGÉ B	PROTECTED / PROTÉGÉ C	CONFIDENTIAL / CONFIDENTIEL	SECRET	TOP SECRET / 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 / Non ☐ Yes / Oui

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

ANNEX D – ELECTRONIC PAYMENT INSTRUMENTS

As indicated in Part 3, clause 3.1.1, the Bidder must identify which electronic payment instruments they are willing to accept for payment of invoices.

The Bidder accepts 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)

ANNEX E –MANDATORY NON-DISCLOSURE AGREEMENT

MANDATORY NON-DISCLOSURE AGREEMENT (NDA) FOR

WildFireSat (WFS)

REQUEST FOR PROPOSAL FILE # 9F044-19-0018/A

PUBLIC SERVICES AND ¨PROCUREMENT CANADA (PSPC)

BY:

_____, a body corporate duly incorporated under the laws of _____, having its Head Office located at _____;
Hereinafter referred to as the (“Supplier’)

TO: HER MAJESTY THE QUEEN IN RIGHT OF CANADA, as represented by the Minister of Public Works and Government Services;
Hereinafter referred to as (“Canada”)

The Supplier acknowledges and agrees that, for the purpose of preparing a response to PSPC for the RFP (the “Purpose”), it is being given access to information that is Confidential or proprietary to Canada or to a third party and agrees to comply with the obligations set forth in this NDA, as follows:

1. For the purpose of this NDA, Confidential Information includes, but not limited to the documents entitled Phase 0 WFS Mission Concept Document (*RD-01):and Phase 0 WFS Mission System Design Document (RD-02)* and any documents, instructions, guidelines, data, material, advice or another information whether received orally, in printed form or recorded electronically or otherwise and whether or not labeled as proprietary, that is disclosed to any person or entity for the Purpose.

2. The Supplier acknowledges that the Confidential Information must be treated as confidential, and shall use or disclose the Confidential Information only in relation with the Purpose and only as expressly authorized under this NDA.

3. The Supplier agrees that, without the prior written consent of the PSPC’s Contracting Authority, it shall not reproduce, copy, divulge, release or disclose any proprietary information, in whole or in part, in whatever way or form, to any person or entity except to a person employed by the Supplier or to a proposed sub-contractor who has a legitimate need to know for the Purpose, who is aware of the confidential nature of the Confidential Information and who is bound by obligations of confidentiality and restrictions on the use of the Confidential Information no less restrictive than those set forth in this NDA.

4. The Supplier shall at all times use the same degree of care as it uses to protect its own confidential information of like importance to prevent the unauthorized use or disclosure of confidential information, but in no event less than a reasonable degree of care. The Supplier shall not, nor shall it permit its employees to, remove any copyright, confidential, proprietary rights, or intellectual property notices attached to or included in any Confidential Information and shall reproduce all such notices on any copies of the Confidential Information.

5. The Supplier agrees to immediately notify the PSPC's Contracting Authority if any person, other than the Supplier's current employees accesses the Confidential Information at any time.

6. The Supplier is responsible for any breach of this NDA by any of its employees, and the Supplier shall not, nor shall permit its employees to, modify, disassemble, decompile, or reverse engineer any Confidential Information even in relation to the Purpose.

7. All the Information contained in the documents *RD-01* and *RD-02* and all other Confidential Information disclosed under this NDA shall remain the property of Canada or of any other person or entity to whom it lawfully belongs, as applicable.

8. Without restricting the generality of the foregoing, the Supplier recognizes that no license or conveyance of any rights under any discoveries, inventions, patents, trade secrets, copyrights, or other form of intellectual property is granted or implied to the Supplier by the disclosure of Confidential Information under this NDA.

9. All Confidential Information will remain the property of Canada and, upon request from the Contracting Authority, the Supplier must destroy or delete the Confidential Information within thirty (30) days following any such request, and provide the Contracting Authority with a written confirmation that neither the Supplier nor any proposed subcontractor has kept any copy of the Confidential Information, in whatever form and on any support whatsoever, and that all copies thereof have either been destroyed or deleted to the Contracting Authority , save for any copy which must be kept to meet a requirement under law.

10. The NDA remains in force indefinitely.

11. Nothing in this NDA should be construed as preventing the disclosure or use of any confidential information to the extent that such information:

    (a) is or becomes known in the public domain through no fault of the Supplier or any proposed subcontractor;

    (b) is or becomes known to the Supplier from a source other than Canada, except any source that is known to the Supplier to be under an obligation to Canada not to disclose the information; or

    (c) is disclosed under compulsion of a legislative requirement or any order of a court or other tribunal having jurisdiction.

12. The Supplier acknowledges and agrees that a breach of this NDA may result in its disqualification as a supplier or as a qualified supplier from the RFP at any time, or immediate termination of the resulting Contract. The Supplier also acknowledges that a breach of this NDA may result in a review of the Supplier's security clearance and review of the Supplier's status as an eligible supplier for other requirements.

13. The Supplier acknowledges and agrees that it will be liable for any and all claims, loss, damages, costs, or expenses incurred or suffered by Canada caused by the failure of the Supplier, or by anyone to whom the Supplier discloses the Confidential Information to comply with these conditions.

14. Canada reserves the right to refuse any request for access to documents.

IN WITNESS WHEREOF, this Non-Disclosure Agreement has been duly signed this day of _____, 2019, by an authorized representative of the

_____
Name of Supplier

_____
Name of authorized representative (print)

_____
Signature
(I have authority to bind the corporation)
Signed by its authorized representative

Witness:

_____
Name of the Witness

ANNEX F – FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY - CERTIFICATION

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)

ANNEX G – TASK AUTHORIZATION FORM AND PROCESS

Detailed Task Authorization Process

The Task Authorization Process is described under the Section 4.3 of the Contract. This Section provides additional details on how this process will be carried.

1. Canada will prepare a description of the required task using the Task Authorization Form presented in this Annex "G". Such form will include the following information:

   - A clear description of the Work to be performed with itemized tasks;
   - A schedule of the Work with major milestone completion dates;
   - A description of any Government Furnished Equipment (GFE) or Government Furnished Information (GFI) that will be provided to the Contractor (if applicable);
   - A list of deliverables (if applicable);
   - A list of reporting requirements (if applicable);
   - A description of any documentation required to release a payment (if applicable);
   - Any other relevant information.

   Such form will then be submitted to the Contractor for review, costing and acceptance.

2. Following its review and costing, the Contractor will sign the Task Authorization Form and submit it for Canada's acceptance by sending it by e-mail to both the Contracting Authority and the Technical Authority (as identified under Sub-Sections 5.1 and 5.2 of the Contract).

3. If the Contractor's proposal is accepted by Canada, the Contracting Authority will counter-sign the Task Authorization Form and will send it by e-mail to the Contractor's Representative (as identified under Section 5.3 of the Contract).

4. Upon receipt of the Signed Task Authorization Form, the Contractor may begin the Work described in the Task Authorization Form.

CONTRACT TASK AUTHORIZATION REQUEST FORM
WildFireSat Phase A
PWGSC File No. 9F044-19-0018

1	Task name:		2	Task number:	

A	Description of the Work:

B	Schedule of Work / Milestone Completion Dates:

C	GFE or GFI to be provided to the Contractor (if applicable):

D	Deliverables (if applicable):

E	Reporting Requirements (if applicable):

F	Documentation required to release a payment:

G	Other Information:

3	Detailed Cost Breakdown

Please provide information as to which personnel category will be assigned to the Task along with their respective level of effort (for information purposes only) and a description of any other cost items.

Labour Cost:
Other Direct Costs (if applicable):
Travel and Living (if applicable):

Total Firm Fixed Price: (Specify unit applicable [pass, lot, etc..])

4	Authorizations

Contractor's Reprensentative	CSA's Technical Authority	PWGSC's Contracting Authority
Name: Title: EMail: Phone:	Name: Title: Email: Phone	Name: Title: EMail: Phone
Signature	Signature	Signature
Date	Date	Date

5	For PWGSC Internal Use Only

CSA Requisition Number: Line #:
Date:

ANNEXE H –POINT-RATED TECHNICAL EVALUATION CRITERIA

Evaluation Criteria Summary:

Item	Evaluation Criteria Title	Point-Rated (P)	Maximum Score	Minimum Required Score
P1	**Corporate Profile and Experience in providing EO data services**	**P**	**20 pts**	**10 pts**
P2	**Team Expertise and Experience**	**P**	**32 pts**	**12 pts**
P3	**Understanding of the Mission Requirements**	**P**	**40 pts**	**18 pts**
P4	**Phase A Project Management Plan**	**P**	**24 pts**	**9 pts**
P5	**Understanding Phase A scope**	**P**	**24 pts**	**9 pts**
	Summary	**N/A**	**140 pts**	**58 pts**

For each of the following Point-Rated Criteria, bids must obtain the minimum points required for each rated criterion and meet the listed mandatory requirements for each rated criterion, if any, to be assessed as responsive under the point rated technical criteria section. Proposals not meeting the minimum required points or not meeting the mandatory requirements will be deemed non-responsive. Only those proposals which are responsive (compliant) with all of the mandatory criteria and then achieve (or exceed) the stated minimum points required for the point rated technical criteria section will be further considered for award of a contract. In all cases, the level of detail provided must be sufficient to confirm compliance with the requirements.

For the following criteria, when a detailed substantiation is required, Bidders must provide a detailed statement of how it complies with the requirements. Cross-references to appropriate sections of the proposal should be provided when applicable and the essence of the referenced information should be summarized in the substantiation.
Where an approach is deemed credible it means that an evaluator, using his/her expertise, experience and the information provided in the bid, is of the opinion that the bidder has clearly demonstrated, through clear examples and verifiable assertions that the approach can meet the objectives.

Bidder Experience
Except where expressly provided otherwise, the experience described in the bid must be the experience of one or more of the following:
1. The Bidder itself;
2. The Bidder's affiliates;
3. The Bidder's subcontractors.
The experience of the Bidder's suppliers will not be considered.

P1. Corporate Profile and Experience in providing Earth Observation (EO) data services

The WildFireSat (WFS) Phase A will investigate new business models for the delivery of a wildfire monitoring data service, including but not limited to an end-to-end commercial data service, government-industrial partnerships, international partnerships, partnerships at the provincial/territorial level. This criterion assess the Bidder's corporate profile and experience in providing Earth Observation (EO) data services.

To demonstrate conformance with the criteria, bidders must provide a description of at least one innovative EO data service in which the bidder had a role within the past 15 years and a description of the business model to implement the service.

Excellent (20 points)
The proposal clearly identifies relevant experience in EO data services. The proposed example demonstrates the bidder lead the development and reached delivery of at least two services using business models that could be relevant to WFS.

Adequate (15 points)
The proposal clearly identifies relevant experience in EO data services. The proposed example demonstrates the bidder lead the development and reached delivery of one service using a business model that could be relevant to WFS.

Minimal (10 points)
The proposal identifies a relevant experience in EO data services. The proposed example shows an important role that the bidder had in the development of the service; the business model is well described and could be relevant for WFS.

Poor (5 points)
The proposal identifies partial experience in EO data services or other data services and the Business model has minimal details.

P2. Team Experience with Space Projects

This criterion assesses the capability (education, knowledge, experience, expertise and complementarities) of the key resources, including subcontractors, identified to carry out the Work for Phase A, as well as the work required to accomplish the subsequent phases (B/C/D) and to effectively scope Phase E. The Bidder should demonstrate that the skills of the team include those necessary to lead teams located in different locations and through different project phases (such as requirements analysis, design, manufacturing, testing). The bid must be in accordance with the following requirements.

1) The Bidder must identify the “Key members” of the projects’ technical and management teams and state their roles, specific qualifications and experience for the Work involved. Resumes of Key members must be provided in an Appendix.

2) The Bidder must identify the Project Manager (PM) and outline his/her qualifications. The Bidder must demonstrate that the proposed Project Manager has a minimum of 5 years of Project Management experience in space projects within last 10 years. The demonstrated PM experience must be in design and/or manufacture and/or test of systems and/or software rated for use in a satellite mission.

3) The Key members (excluding the Project Manager) must have a combined experience in the following:

a) Earth Observing IR Payload Design, Calibration, Integration and Test
b) Satellite Bus Design, Launcher Selection, Spacecraft Integration and Test
c) Ground Segment, Data Processing and Calibration

For P2 criterion, bids will be evaluated based on the following evaluation table. Each of the 4 listed elements will be evaluated independently. The total score for P2 criterion is the cumulative points for the 4 elements.

ELEMENTS	Poor 0 point	Minimal 3 points	Adequate 5 points	Excellent 8 points
1- Project Manager (PM)	The requirement is not addressed or fully substantiated, the proposal is non-compliant, or otherwise does not meet the level defined for “Minimal”	PM has a minimum of 5 years of Project Management experience in space projects within last 10 years. The PM experience must be in design, manufacture and test of systems and software rated for use in a satellite mission.	PM has a minimum of 10 years of Project Management experience in space projects within last 15 years. The experience must be in design, manufacture and test of systems and software rated for use in a satellite mission.	PM has a minimum of 10 years of Project Management experience on at least 2 space projects within last 15 years. The experience must be in design, manufacture, assembly and test of systems and software rated for use in a satellite mission with a minimum of 5 years for a satellite mission.
2- Key members: Infra-Red (IR) Payload Engineering experience	The requirement is not addressed or fully substantiated, the proposal is non-compliant, or otherwise does not meet the level defined for “Minimal”	Each Key team member with leadership responsibilities in a given area of payload engineering expertise (at least one Key member is identified for each of the relevant areas described below) has a minimum of 5 years working in this area on spacecraft IR payloads of complexity comparable to the WFS Phase 0 payload. The relevant areas of expertise must include: (i) optomechanical design; (ii) optical design and calibration; (iii) camera electronics design; and (iv) telescope and camera AIT.	Each Key team member with leadership responsibilities in a given area of payload engineering expertise (at least one Key member is identified for each of the relevant areas described below) has a minimum of 7 years working in this area on spacecraft IR payloads of complexity comparable to the WFS Phase 0 payload. The relevant areas of expertise must include: (i) optomechanical design; (ii) optical design and calibration; (iii) camera electronics design; and (iv) telescope and camera AIT. The bid describes at least one project in which a Key member was actively involved (average commitment >50% of full time hours for the duration of the project) in Phase A through C is described, which produced an earth observing IR payload.	Each Key team member with leadership responsibilities in a given area of payload engineering expertise (at least one Key member is identified for each of the relevant areas described below) has a minimum of 10 years working in this area on spacecraft IR payloads of complexity comparable to the WFS Phase 0 payload. The relevant areas of expertise must include: (i) optomechanical design; (ii) optical design and calibration; (iii) camera electronics design; and (iv) telescope and camera AIT. The bid describes at least one project in which a Key member was actively involved (average commitment >50% of full time hours for the duration of the project) in Phase A through D is described, which produced an earth observing IR payload.

ELEMENTS	Poor 0 point	Minimal 3 points	Adequate 5 points	Excellent 8 points
3- Key members: Spacecraft Design, Integration and Test, including Launcher Selection and Accommodation	The requirement is not addressed or fully substantiated, the proposal is non-compliant, or otherwise does not meet the level defined for “Minimal”	At least one Key member has a minimum of 3 years of experience in the last 10 years in the following areas: (i) each major subsystem relating to spacecraft design (including launcher selection and accommodation) (ii) spacecraft integration, and test	At least one Key member has a minimum of 5 years of experience in the last 10 years in the following areas: (i) each major subsystem relating to spacecraft design (including launcher selection and accommodation) (ii) spacecraft integration, and test The bid describes at least one projects in which the Key member was actively involved (average commitment >50% of full time hours for the duration of the project) in Phase A through C development of a microsat (mass 20 - 150 kg) with an earth observation payload.	At least one Key member has a 10 years of experience in the last 15 years in the following areas: (i) each major subsystem relating to spacecraft design (including launcher selection and accommodation) (ii) spacecraft integration, and test The bid describes at least one projects in which the Key member was actively involved (average commitment >50% of full time hours for the duration of the project) in Phase A through D development of a microsat (mass 20 - 150 kg) with an earth observation payload that was successfully commissioned.
4- Key members: Ground Segment, Data Processing and Calibration, Spacecraft Software	The requirement is not addressed or fully substantiated, the proposal is non-compliant, or otherwise does not meet the level defined for “Minimal”	At least one Key member has a minimum of 3 years of experience in delivering space-qualified systems that were successfully commissioned within the last 10 years. The systems described may include Ground Segment, Data Processing and Calibration, Spacecraft Software.	At least one Key member has a minimum of 5 years of experience in delivering space-qualified systems that were successfully commissioned within the last 10 years. The systems described may include Ground Segment, Data Processing and Calibration, Spacecraft Software.	At least one Key member has a minimum of 10 years of experience in delivering space-qualified systems within the last 15 years. At least two projects are described in which the Key member was actively involved (average commitment >50% of full time hours for the duration of the project) in Phase A through D development of a space-qualified system that was successfully commissioned. The systems described may include Ground Segment, Data Processing and Calibration, Spacecraft Software.

P3. Understanding of the Mission Requirements (Technical Criteria)

The Bidder must propose a preliminary, high level concept that demonstrates an understanding of the mission requirements. The concept should describe the proposed:

- Class of satellite bus (mass and size range)
- Number of satellites
- Orbit
- Payload Technology
    - Bands included and type of detector for each band
    - Performance (proposal specific, or closest existing technology and discussion of required effort to adapt to the WFS mission)
    - Field of view
    - Spatial resolution
    - Data generation rate
- Downlink Architecture
    - Satellite transmitter band, power, and data rate
    - Ground stations used
    - Number of passes per day

The proposed solution should address at least the Table 2 requirements, which are a subset of the mission requirements provided in the Mission Requirements Document, CSA-WFS-RD-0001. It should be possible to accomplish the proposed solution within the maximum cost provided in Section 3.2 of the SOW.

It is not required to fully substantiate compliance to the requirements listed in Table 2.
The evaluation is based on the understanding of the requirements. This may be demonstrated by providing high level analyses supporting compliance, identifying candidate design elements/technologies and discussing their features, shortcomings, and developmental needs to adapt to the WFS mission, discussing challenges in meeting specific requirements, etc. In each case the bidder should provide sufficient discussion to describe a complete path to demonstrating compliance (at the concept level), however completing all the steps described is not required.

Table 2: Mission Requirements - Compliance Substantiation

	WFS Mission Requirements (CSA-WFS-RD-0001)	
#	Requirement Number	Requirement
1	WFS-MRD-FUN-010	Daily Coverage - Threshold
2	WFS-MRD-FUN-030	Maximum Co-Elevation Angle - Threshold
3	WFS-MRD-FUN-060	Instrument Channels - Threshold
4	WFS-MRD-FUN-090	MWIR Radiance Range
5	WFS-MRD-FUN-120	MWIR Noise Requirement - Threshold
6	WFS-MRD-FUN-140	Temperature Measurement Accuracy - Threshold
7	WFS-MRD-FUN-210	Nadir-Pointing Spatial Resolution - Threshold

	WFS Mission Requirements (CSA-WFS-RD-0001)	
#	Requirement Number	Requirement
8	WFS-MRD-OPE-090	Data Latency - Threshold

For P3 criterion, bids will be evaluated based on the following definitions:

*Definition	Definition Description	Points
Excellent	A technical solution is proposed that meets the requirement and is accompanied by supporting information (discussion or analyses) that supports its compliance to the requirement. Alternatively, a representative option or options are presented with a detailed discussion of the required changes, analyses, and other steps required to develop a compliant concept. The analyses, discussions, and/or other supporting information provided is detailed, high quality, and covers all major aspects of the requirement. Errors or shortcomings, if present, are very minor and have no impact on the proposal. Key development challenges related to the requirement are identified and discussed. It is clearly demonstrated that the bidder has a high level of understanding of the technical factors associated with the requirement.	5
Adequate	A technical solution is proposed that meets the requirement and is accompanied by supporting information (discussion or analyses) that supports its compliance to the requirement. Alternatively, a representative option or options are presented with a discussion of the required changes, analyses, and other steps required to develop a compliant concept. The analyses, discussions, and/or other supporting information provided is detailed, high quality, and covers most major aspects of the requirement. Errors or shortcomings, if present, have an impact on the proposal, but not in an area of great importance. It is demonstrated that the bidder has a level of understanding of the technical factors associated with the requirement that is sufficient to perform the work required.	3
Poor	The requirement is not addressed. If it is addressed, it has significant errors, shortcomings, or omissions that indicate a level of understanding insufficient to perform the work required. A score of "Poor" may also be awarded if the proposal does not otherwise meet the level defined for "Adequate".	0

The discussion for each requirement required in Table 2 will be evaluated and assigned "Excellent", "Adequate", or "Poor" and the point value indicated above. The total score for criteria P3 is the cumulative value of the points assigned for all Table 2 requirements.
The proposal must receive a score of "Adequate" or "Excellent" for at least 6 of the Table 2 requirements to be considered minimally compliant. **If 3 or more requirements receive a rating of "Poor", a total score of 0 points will be assigned for criteria P3.**

P4. Phase A Project Management Plan (PMP)

The purpose of the Phase A PMP criteria is to ensure that the work described in the SOW is performed in the most effective manner. The PMP should be based on recognized management tools most applicable to the proposed project, such as a scope planning (Work Breakdown Structure WBS and Work Package Description WPD) and schedule development charts (e.g. Gantt chart). Equivalent contractor developed, project-tailored tools/charts are also acceptable.
This criterion assesses the Bidder's Implementation approach and how the suggested methodology will achieve the Phase A work.

The Bidder must provide the following information:

- A Project Management Plan (PMP) for Phase A (CDRL-1);
- Work Breakdown Structure and Work Package Descriptions for all Phase A activities (CRDL-2);
- An organisation chart with roles and responsibilities and level of effort; and
- Schedule (e.g. Gantt chart, etc.) for all Phase A activities including the SOW Milestones, showing dependencies and critical path.

For P4 criterion, each element in the table below (1 to 3) will be evaluated independently and assigned "Poor", "Minimal", "Adequate" or "Excellent" and receive the corresponding point value. The total score for criteria P4 is the cumulative points for the 3 elements.

Elements	Poor 0 points	Minimal 3 points	Adequate 5 points	Excellent 8 points
1- Requested Elements	Not all elements requested above are provided or are provided with insufficient details	All elements were provided with limited details	Some of the requested elements were not sufficiently detailed	All elements requested above are provided with extensive details
2- Implementation Approach Methodology	The implementation approach as described in the bid do not follow a methodology	The implementation approach follows a methodology but with some shortfalls	The implementation approach follows a defined methodology	The implementation approach follows a well defined and well integrated methodology
3- Implementation Approach Efficiency	The implementation approach to achieve the objectives of the work is lacking or inefficient	The implementation approach to achieve the objectives of the work is efficient but with some shortfalls	The implementation approach to achieve the objectives of the work is efficient	The implementation approach to achieve the objectives of the work is very efficient

P.5 Understanding of Phase A Scope

This criterion assesses the understanding of the bidder regarding the scope of work to be completed during Phase A.

The Bidder must provide:

- A description of the key mission challenges and how they will be addressed during Phase A;
- An overview of the technical methodology that they propose to use. The technical methodology proposed should describe how the work would be conducted through the use of analytical methods, trade studies, procedures, techniques, industry standards, best practices and the state of the art for pertinent disciplines, such as "value engineering";
- The proposed approach to address the trade-off analysis (SOW section 3.4.4);
- Analog/parametric ROM mission costing to demonstrate that the proposed concept can be delivered within the cost cap plus up to 20% of the value provided in SOW Section 3.2; and
- A preliminary risk assessment with Phase A mitigation strategy.

For P5 criterion, each element in the table below (1 to 3) will be evaluated independently and assigned "Poor", "Minimal", "Adequate" or "Excellent" and receive the corresponding point value. The total score for criteria P5 is the cumulative points for the 3 elements.

Elements	Poor 0 points	Minimal 3 points	Adequate 5 points	Excellent 8 points
1- Requested information	Not all elements requested above are provided or are provided with insufficient detail	All elements were provided with limited details	Some of the requested elements were not sufficiently detailed	All elements requested above are provided with extensive details
2- Phase A Understanding	The information provided does not show sufficient understanding of the scope of work in Phase A	The information provided shows a limited understanding of the scope of work in Phase A	The information provided shows a good understanding of the scope of work in Phase A	The information provided shows an excellent understanding of the scope of work in Phase A
3- Implementation Approach Efficiency	The effectiveness of the implementation approach to achieve the objectives of the work is not credible	The effectiveness of the implementation approach to achieve the objectives of the work is credible with some shortfalls	The effectiveness of the implementation approach to achieve the objectives of the work is credible	The effectiveness of the implementation approach to achieve the objectives of the work is credible and innovative

ANNEXE I – POINT-RATED TECHNICAL EVALUATION CRITERIA – TASKS AUTHORIZATIONS

B2 Point rated evaluation for tasks authorizations

This following section applies to the work performed under the Contract on an "as and when requested basis" using a Task Authorization (TA), to which this basis of payment applies.

Prices are to be presented in Canadian funds, all-inclusive, applicable sales taxes extra and shown separately (if applicable).

In order to evaluate the hourly rate provided by the bidder, the bidder is required to calculate the maximum of hours (up to a maximum of 2 decimals) for each of the labour categories in accordance with the following table's fixed ratio of total hours and maximum budget.

The maximum budget of $150,000.00 and fixed ratio of total hours in the following table are provided for bid evaluation purposes only. It does not represent a commitment by Canada.

The all-inclusive firm fixed hourly price proposed for an engineer must represent between 65% and 80% of the all-inclusive firm fixed hourly price proposed for a senior engineer/program manager, and the all-inclusive firm fixed hourly price proposed for a junior engineer must represent between 65% and 80% of the all-inclusive firm fixed hourly price proposed for an engineer.

Labour Category	**All-inclusive Firm Fixed Hourly Price**	**Fixed ratio of total hours**	**Hours**	**Total Price per Labour Category** **(Hourly Price x Hours)**
Senior Engineer/ Program manager	____/Hour	40%	_____	_____
Engineer	____/Hour	40%	_____	_____
Junior engineer	____/Hour	10%	_____	_____
Administrative Support	____/Hour	10%	_____	_____
		TOTAL	_____	_____
				N.B.: Maximum Budget: $150,000.00

Example:

Labour Category	All-inclusive Firm Fixed Hourly Price	Ratio of total hours	Hours	Total Price
Senior Engineer/ Program manager	$100.00/Hour	40%	732.6	$73,260.00
Engineer	$80.00/Hour	40%	732.6	$58,608.00
Junior engineer	$64.00/Hour	10%	183.15	$11,721.60
Administrative Support	$35.00/Hour	10%	183.15	$6,410.25
		TOTAL	**1831.5 hours**	**$149,999.85**