



**RETURN RESPONSES TO:
RETOURNER LES RÉPONSES À:**

PWGSC/ TPSGC
Place Bonaventure
800 de la Gauchetière Ouest
7^e étage/ 7th Floor
Montreal, Quebec,
Canada
H5A 1L6

**REQUEST FOR PROPOSAL
(RFP)**

**DEMANDE DE
PROPOSITIONS (DDP)**

Comments – Commentaires

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

Issuing Office - Bureau de distribution

Space Programs Directorate /
Direction des programmes spatiaux
6767 route de l'Aéroport
Longueuil, Quebec, Canada
J3Y 8Y9



Titre – Sujet Système de vision déployable par Dextre (SVDD) / Dextre Deployable Vision System (DDVS)	
Solicitation No. - N° de l'invitation 9F052-150058	Amendment No. - N° modif. N/A
Client Reference No. - N° de référence du client 9F052-150058	Date 07-07-2015
GETS Ref. No. - N° de réf. de SEAG	
File No. - N° de dossier 9F052-150058	CCC No./N° CCC - FMS No/N° VME N/A
Solicitation Closes - L'invitation prend fin : at - à 2:00 pm On - le August 28, 2015	Time Zone Fuseau horaire Eastern Daylight Time (EDT)
F.O.B - F.A.B. Plant-Usine : <input type="checkbox"/> Destination : <input checked="" type="checkbox"/> Other-Autre : <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Jessie Jutras	Buyer Id - Id de l'acheteur MTD305
Telephone No. - N° de téléphone 450-926-6670	FAX No. - N° de FAX N/A
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Canadian Space Agency 6767 route de l'Aéroport Longueuil, Quebec, Canada J3Y 8Y9	

Instructions : See Herein
Instructions : Voir aux présentes

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

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15. Directive on Communications with the Media

List of Annexes:

Annex "A" Statement of Work
Annex "B" Basis of Payment and Milestone schedule
Annex "C" Disclosure Certification

The following Attachments:

Attachment 1 to Part 3 Technical and Managerial Bid Preparation Instructions
Attachment 1 to Part 4 Mandatory and Point Rated Evaluation Criteria
Attachment 1 to Part 5 Federal Contractors Program for Employment Equity – Certification

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PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation is divided into seven parts plus attachments and annexes, as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided;
- Part 6 Security, Financial and Other Requirements: includes specific requirements that must be addressed by bidders; and
- Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The following Annexes:

Annex "A"	Statement of Work
Annex "B"	Basis of Payment and Milestone schedule
Annex "C"	Disclosure Certification

The following Attachments:

Attachment 1 to Part 3 Technical and Managerial Bid Preparation Instructions
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1.2 Summary

Project title

Dextre Deployable Vision System (DDVS) – Phase A

Description

Public Works and Government Services Canada (PWGSC) on behalf of Canadian Space Agency (CSA) located in St-Hubert, (Quebec), is planning to perform a feasibility assessment to provide a Dextre Deployable Vision System to the Mobile Servicing System (MSS) on the ISS.

This current RFP is for Phase A only. If more than one bidder is compliant, up to two separate contracts will be awarded to two different contractors for the Phase A Work. It is important to note that the result of this RFP will impact future phases as once the Phase A contracts are completed successfully and the two contractors deliver a valid solution for Phase A, a second RFP for Phases B/C and D will be released to the two Phase A contractors only. The two Phase A contractors will then compete for the Work of Phases B/C and D and only one contract will be issued for the subsequent phases. For a generic description of the standard Work and major reviews to be performed under the Phases B/C and D, please refer to document CSA-SE-STD-0001 rev A.

In the event that there is only one compliant bid received by Canada for Phase A or that only one contractor delivers a valid solution after Phase A contracts are completed, PWGSC will post a second competitive RFP on Buy&Sell for Phases B/C and D.

Period of Contract

The contract issued will be for a period of 8 months for Phase A.

Security Requirements

There is no security requirement associated with this requirement.

Integrity provisions for procurement

This requirement is subject to the Integrity Provisions for Procurement. Bidders must provide a list of names, or other related information as needed, pursuant to section 01 of Standard Instructions 2003 (2015-07-03). Please, also refer to Part 5 – Certifications.

Former Public Servant

For services requirements, Bidders must provide the required information as detailed in article 2.4 of Part 2 of *the bid solicitation*, in order to comply with Treasury Board policies and directives on contracts awarded to former public servants.

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Trade agreements

This requirement is not subject to the trade agreements as per the following dispositions:

- Agreement on Internal Trade (AIT):
Chapter 5, Annex 502.1A
- World Trade Organization Agreement on Government Procurement (WTO-AGP):
Appendix I, Annex I
- North American Free Trade Agreement (NAFTA)
Chapter 10, Annex 1001.1a-1
- Canada - Chile Free Trade Agreement
Annex Kbis-01, 1-1
- Canada - Peru Free Trade Agreement
Annex 1401.1-1
- Canada-Colombia Free Trade Agreement
Annex 1401-1

Canadian Content

The requirement is limited to Canadian goods and services.

Production of and/or access to controlled goods

This procurement is not subject to the Controlled Goods Program

Federal Contractors Program for Employment Equity

There is a Federal Contractors Program (FCP) for employment equity requirement associated with this procurement; see Part 5 - Certifications, Part 7 - Resulting Contract Clauses and the attachment named Federal Contractors Program for Employment Equity - Certification.

1.3 Debriefings

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

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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](#) issued by Public Works and Government Services Canada.

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

The [2003](#) (2015-07-03) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

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

Delete: sixty (60) days
Insert: ninety (90) days

2.2 SACC Manual Clauses

[A7035T](#) (2007-05-25), List of Proposed Subcontractors

2.3 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

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

2.4. 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;

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- 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;

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- 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.

2.5 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than ten (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.

2.6 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.

2.7 Improvement of Requirement during Solicitation Period

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least thirty (30) days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

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PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

(a) Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (One (1) hard copy and two (2) soft copies on CD or DVD)

Section II: Financial Bid (One (1) hard copy and one (1) soft copy on CD or DVD)

Section III: Certifications (One (1) hard copy and one (1) soft copy on CD or DVD)

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

- (b) For the hard copies, each section must be bound separately;
- (c) If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy;
- (d) For the soft copies of Section I (Technical and Managerial as well as the Executive Summary), all of the information must be contained in one file. The only acceptable formats are: MS Word and PDF;
- (e) For the soft copy of Section II (Financial Bid), all of the information must be contained in one file. The only acceptable formats are: MS Word and PDF;
- (f) The soft copy of Section II must be submitted on a separate CD or DVD than the soft copy submitted for Section I;
- (g) The bid should 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](#). 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.

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Section I: Technical and Managerial Bid

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

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

Part 4, Evaluation Procedures and Basis of Selection contains additional instructions that bidders should consider when preparing their technical Bid.

The structure and content requested for the Technical and Managerial Bid (Section I) are detailed in Attachment 1 to Part 3: Technical and Managerial Bid Preparation Instructions.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment in Annex B.

The total amount of Applicable Taxes must be shown separately.

3.1.1 Price Breakdown

Bidders are requested to detail the following elements for the performance of each phase of the Work broken down per WPD listed in the Statement of Work (SOW).

- (a) **Labour:** For each individual and (or) labour category to be assigned to the Work, indicate: i) the hourly rate, inclusive of overhead and profit; and ii) the estimated number of hours.
- (b) **Equipment:** Specify each item required to complete the Work and provide the pricing basis of each one, Canadian customs duty and excise taxes included, as applicable.
- (c) **Materials and Supplies:** Identify each category of materials and supplies required to complete the Work and provide the pricing basis.
- (d) **Travel and Living Expenses:** Indicate the number of trips and the number of days for each trip, the cost, destination and purpose of each trip, together with the basis of these costs which must not exceed the limits of the [Treasury Board \(TB\) Travel Directive](#). With respect to the TB Directive, only the meal, private vehicle and incidental allowances specified in Appendices B, C and D of the Directive, and the other provisions of the Directive referring to "travellers", rather than those referring to "employees", are applicable. The Treasury [Board Secretariat's Special Travel Authorities](#), also apply.
- (e) **Subcontracts:** Identify any proposed subcontractor and provide for each one the same price breakdown information as contained in this article.

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- (f) **Other Direct Charges:** Identify any other direct charges anticipated, such as long distance communications and rentals, and provide the pricing basis.
- (g) **Profit or Fee:** State your proposed profit or fee, if any, and the basis on which it is applied or calculated.
- (h) **Applicable Taxes:** Identify any Applicable Taxes separately.

3.1.2 Exchange Rate Fluctuation

[C3011T](#) (2013-11-06), Exchange Rate Fluctuation

Section III: Certifications

Bidders must submit the certifications required under Part 5.

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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, management and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

4.2 Technical and Management Evaluation

4.2.1 Mandatory and Point Rated Technical and Management Evaluation Criteria

Mandatory and point rated technical evaluation criteria are included in Attachment 1 to Part 4.

4.3 Financial Evaluation

4.3.1 Mandatory Financial Criteria

Bidders must submit a financial bid that is below the maximum funding available for each contract which is \$1,700,000.00 excluding taxes.

Bids which fail to meet this mandatory financial criterion and that are in excess of this amount will be considered non-responsive.

This disclosure does not commit Canada to pay the maximum funding available.

4.3.2 Evaluation of Price

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

4.4 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. meet all mandatory technical evaluation criteria; and
 - c. Obtain the required minimum overall points for the technical evaluation criteria which are subject to point rating;
 - d. obtain the required minimum points per criterion for the technical evaluation criteria which are subject to point rating;
 - e. Meet the mandatory financial criterion

Bids not meeting (a) or (b) or (c) or (d) or (e) will be declared non responsive. **The two (2) responsive bids with the highest number of points will be recommended for award of a contract**, provided that the total evaluated price does not exceed the budget available for this requirement.

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In the event the highest number of points for two or more bidders is identical, the contract will be awarded to the bidder with the highest rated score for evaluation criterion P4 of attachment 1 to part 4.

In the event the highest rated score for the criterion P4 is identical, the contract will be awarded to the bidder with the lowest overall cost.

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PART 5 - CERTIFICATIONS

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

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default in carrying out any of its obligations under the Contract, 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 may render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required Precedent to Contract Award

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

5.1.1 Integrity Provisions - Associated Information

By submitting a bid, the Bidder certifies that the Bidder and its Affiliates are in compliance with the provisions as stated in Section 01 Integrity Provisions - Bid of Standard Instructions [2003](#). The associated information required within the Integrity Provisions will assist Canada in confirming that the certifications are true.

5.1.2 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 from [Employment and Social Development Canada \(ESDC\) - Labour's](#) website.

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 attachment [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.

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5.2 Additional Certifications Required Precedent to Contract Award

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

5.2.1 Canadian Content Certification

This procurement is limited to Canadian services.

The Bidder certifies that:

() the services offered are Canadian services as defined in paragraph 4 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\(9\)](#), Example 2, of the [Supply Manual](#).

SACC Manual clause

[A3050T](#) (2010-01-11) Canadian Content Definition.

5.2.2 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability. Failure to comply with the request may result in the bid being declared non-responsive.

5.2.3 Education and Experience

The Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.

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5.2.4 Language Capability

The Bidder certifies that it has the language capability required to perform the Work, as stipulated in the Statement of Work.

5.2.5 Subcontractors

The Bidder must submit the name of its main subcontractors that will support the execution of the project and demonstrate their agreement to do so. There is no requirement to report the purchase of off-the-shelf items and software and such standard articles and manufacturers in the normal course of business ordinarily produce materials or the provision of such incidental services as might ordinarily be subcontracted in performing the Work.

The Bidder must provide, for each subcontractor, the following:

- a) The name of the subcontractor: complete name of its legal entity and place of incorporation;
- b) The subcontractor contact: name, title, telephone and fax numbers;
- c) A description of the roles and responsibilities of the subcontractor and/or material to be purchased from that subcontractor;
- d) A document signed by the subcontractor indicating its agreement to undertake the work as described in the Bidder's proposal.

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PART 6 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

6.1 Security Requirement

There is no Security Requirement associated with this request.

6.2 Financial Capability

Manual SACC clause [A9033T](#) (2012-07-16) Financial Capability

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PART 7 - RESULTING CONTRACT CLAUSES

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

1. Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex A and the Contractor's technical and managerial bid entitled _____, dated _____. (*Will be inserted at contract award*)

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](#) issued by Public Works and Government Services Canada.

2.1 General Conditions

The General Conditions [2040 \(2015-07-03\)](#), **General Conditions - Research & Development**, applies to and form part of the Contract.

3. Security Requirement

There is no Security Requirement associated with this request.

4. Term of Contract

4.1 Period of the Contract

The Contract issued will be for a period of 8 months for Phase A.

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Jessie Jutras
Supply Specialist
Public Works and Government Services
Canada Space Programs Directorate
6767, Route de l'Aéroport
St-Hubert, QC, Canada J3Y 8Y9

Telephone: 450-926-6670
E-mail address: jessie.jutras@tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

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5.2 Project Authority *(will be added at contract award)*

The Project Authority for the Contract is:

Name:
Title:
Organization:
Address:

Telephone:
Facsimile:
E-mail:

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

5.3 Contractor's Representative *(will be added at contract award)*

The Contractor's Representative for the Contract is:

Name:
Title:
Organization:
Address:

Telephone:
Facsimile:
E-mail:

6. Proactive Disclosure of Contracts with Former Public Servants

SACC Manual Clause [A3025C](#) (2013-03-21)

7. Payment

7.1 Basis of Payment - Firm Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price, as specified in the Contract for a cost of \$ _____ *(the amount will be inserted at contract award)*. Customs duties are included and Applicable taxes are extra, if applicable.

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.

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7.2 Method of Payment

7.2.1 Milestone Payments

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in Annex B - Basis of Payment and the payment provisions of the Contract if:

- (a) an accurate and complete claim for payment using form [PWGSC-TPSGC 1111](#) 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.

7.2.2 Schedule of Milestones

The schedule of milestones for which payments will be made in accordance with the Contract is detailed in Annex B – Basis of payments.

7.2.3 SACC Manual Clauses

[A9117C](#) (2007-11-30), T1204 - Direct Request by Customer Department
[C0705C](#) (2010-01-11), Discretionary Audit

8. Invoicing Instructions

8.1 Invoicing Instructions - Progress Claim - Firm Price

1. The Contractor must submit a claim for progress payment using form [PWGSC-TPSGC 1111](#).

Each claim must show:

- (a) all information required on form [PWGSC-TPSGC 1111](#);
 - (b) all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
 - (c) the description and value of the milestone claimed as detailed in the Contract.
2. The Applicable Taxes, must be calculated on the total amount of the claim. At the time the holdback is claimed, there will be no GST and QST payable as it was claimed and payable under the previous claims for progress payments.
 3. The Contractor must prepare and certify **one (1) original and two (2) copies** of the claim on form [PWGSC-TPSGC 1111](#), **forward:**
 - a) the **original and one (1) copy** to the Canadian Space Agency at the address shown on page 1 of the Contract under "Invoices" (Financial Services Section) for appropriate certification by the Project Authority identified herein after inspection and acceptance of the Work takes place;

and,

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- b) **one (1) copy of the original** progress claim to the Contracting Authority identified under the section entitled "Authorities" of the Contract.
4. The CSA's Financial Services Section will then forward the original and one (1) copy of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.
5. The Contractor must not submit claims until all work identified in the claim is completed.

9. Certifications

9.1 Compliance

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing cooperation in providing associated information are conditions of the Contract. Certifications are subject to verification by Canada during the entire period of the Contract. If the Contractor does not comply with any certification, fails to provide the associated information, or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

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.

9.3 SACC Manual Clauses

[A3060C](#) (2008-05-12), Canadian Content Certification

10. Applicable Laws

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

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 (2015-07-03) General Conditions - Research & Development modified above;
- (c) Annex A, Statement of Work
- (d) Annex B, Basis of Payment;
- (e) Annex C, Disclosure Certification;
- (f) The Contractor's bid dated _____.

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12. Foreign Nationals (Canadian Contractor)

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

13. Insurance

SACC Manual clause [G1005C](#) (2008-05-12) Insurance

14. Disclosure certification

On completion of the Work, the Contractor must submit to the Technical Authority and to the Contracting Authority a copy of the Disclosure Certification attached as Annex C stating that all applicable disclosures were submitted or that there were no disclosures to submit under General conditions 2040 (2015-07-03) article 28 - Research and Development.

15. 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 agreement, 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. Communication Activities Format

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

Subject to review and approval by the CSA, the Contractor may mention and/or indicate visually, without any additional costs to the CSA, the CSA's participation in the contract through one or both of the following methods at the complete discretion of the CSA:

- a. By clearly and prominently labelling publications, advertising and promotional products and any form of material and products sponsored or funded by the CSA, as follows, in the appropriate official language:

“This program/project/activity is undertaken with the financial support of the Canadian Space Agency.”

“Ce programme/projet/activité est réalisé(e) avec l'appui financier de l'Agence spatiale canadienne.”

- b. By affixing CSA's corporate logo on print or electronic publications, advertising and promotional products and on any other form of material, products or displays sponsored or funded by the Canadian Space Agency.

The Contractor must obtain and use a high resolution printed or electronic copy of the CSA's corporate identity logo and seek advice on its application, by contacting the Project Authority, as mentioned in section 5.2 of this contract.

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3. Communication 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 Article 44 of the General Conditions 2040 contract titled Notice. The Communications Notice must include a copy or example 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.

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ANNEX "A"

STATEMENT OF WORK



CSA-DDVS-SOW-0001

Canadian Space Agency Space Exploration Projects

INTERNATIONAL SPACE STATION DEXTRE DEPLOYABLE VISION SYSTEM

STATEMENT OF WORK

**REVISION A
JUNE 25, 2015**

NCAGE Code: L0889

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**Canadian Space
Agency**

**Agence Spatiale
Canadienne**

Dextre Deployable Vision System

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1 INTRODUCTION

1.1 GENERAL AND BACKGROUND INFORMATION

The Dextre Deployable Vision System (DDVS) project will provide an increased inspection capability for the International Space Station (ISS), and will also evolve the existing space vision capability to position Canadian industry for future space exploration opportunities. The DDVS project supports Canada's continued commitment to the ISS and contributes to the enhancement of Canada's return on ISS investment.

This new capability combines existing vision system technologies such as laser scanning, infrared sensors as well as high definition cameras in a novel robotically-compatible instrument. It will contribute directly to the general maintenance and upkeep required to keep the ISS operational, enhancing ISS inspection ability to support operations and maintenance of the aging ISS infrastructure, including Canada's Mobile Servicing System (Canadarm2 and Dextre).

1.2 MISSION OBJECTIVES

The new capability has the following mission objectives:

- Provide enhanced external surface inspection service to the ISS
- Advance technologies needed for future exploration missions
- Robotic Mobility
- Minimize changes to the ISS operations practices
- Inspire Canadians

1.3 SCOPE

The contractor must provide the facilities, personnel, materials, and services required to perform this system requirement definition phase of the project. The result of this phase will be the System Requirement Review (SRR). It further demonstrates that the system conceptual design will provide a system that meets the system requirements within an acceptable level of risk, that the Concept of Operations and the system requirements are compatible and that the project is ready to proceed with the preliminary design.

The nature and scope of this project requires an interdisciplinary team to address all aspects of this mission, including technology, instrument operations, ISS-specific operations, and future applications of this type of instrument for space exploration.

This Statement of Work covers activities for Phase A only. Supporting information, including milestones and assumptions for future phases, can be found in Appendix C. This is useful for cost and schedule planning of future phases, which is within the scope of Phase A.

The DDVS must meet the requirements as defined in Section 2.1 (Applicable Documents). These include mission level functional and performance requirements as well as other applicable requirements such as ISS and MSS interfaces, ground segment, quality, safety and operational requirements.

1.3.1 Project Milestones and Schedule for Phase A

This section summarizes the schedule for the Phase A activities. For the sake of planning purposes, the date of Contract Award (CA) can be assumed to be October 1, 2015. The Milestone dates given are a maximum limit. This phase is scheduled over a **7-month** period.

TABLE 1-1 – PHASE A MILESTONE REVIEWS

Milestones	Date
Contract Award (CA)	Target: October 2015
Kick-off Meeting (KOM)	CA + 2 weeks
Preliminary Qualification Status Review (PQSR)	CA + 4 months
Conceptual Design Review (CDR)	CA + 5 months
System Requirements Review (SRR)	CA + 7 months

TABLE 1-2 – PHASE A MEETINGS

Meetings	Date
DDVS Team Teleconference Meeting	Weekly

1.4 ASSUMPTIONS

1.4.1 Language

As English is the standard oral and written language for design, development, operation and utilization on the International Space Station (ISS), 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 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.

1.5 ROLES & RESPONSIBILITIES

Many partners share the responsibilities for the success of this effort. A summary of their roles and responsibilities is as follows:

Dextre Deployable Vision System

- **CSA:**
 - Technical Authority (TA).
 - Main coordinator for the overall Work.
 - Main interface and generates agreement with the ISS Program and the ISS International Partners.
 - Manifests the System for launch to the ISS.
 - Coordinates all operational activities.

- **NASA:**
 - Overall ISS integrator.
 - Technical authority for all ISS processes and acceptability.
 - Provides necessary facilities for integration, end-to-end tests and fit checks.
 - Coordinates launch with launch provider, based on the manifest request from the CSA.
 - Provides resources required to support operations.

- **Contractor:**
 - Designs, constructs, tests, qualifies, certifies, delivers and commissions the system.

- **Public Works and Government Services Canada (PWGSC):**
 - Contractual Authority.
 - The only entity allowed to change the scope of Work.

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-DDVS-RD-0002 Rev. B	DDVS Mission Requirements Document ftp://ftp.space.gc.ca/users/DDVS/pub/
AD-02	CSA-DDVS-RD-0003 Rev. IR	DDVS Product Assurance Requirements ftp://ftp.space.gc.ca/users/DDVS/pub/
AD-03	CSA-DDVS-CO-0001 Rev. IR	DDVS Concept of Operations ftp://ftp.space.gc.ca/users/DDVS/pub/
AD-04	CSA-DDVS-PL-0003 Rev. IR	DDVS Operations Development Plan ftp://ftp.space.gc.ca/users/DDVS/pub/
AD-05	CSA-DDVS-ID-0001 Rev. IR	DDVS Preliminary Interface Control Document (ICD) ftp://ftp.space.gc.ca/users/DDVS/pub/
AD-06	CSA-ST-GDL-0001 Rev. B	Technology Readiness Levels and Assessment Guidelines ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/
AD-07	ESTEC, TEC-SHS/5574/MG/ap Rev. 6	Technology Readiness Levels Handbook for Space Applications ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/
AD-08	CSA-ST-FORM-0003 Rev. A	Critical Technologies Elements Identification Criteria Worksheet ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/Technology_and_Risk_Assessment_Worksheets%20_and_Rollup_Tool/
AD-09	CSA-ST-FORM-0001 Rev. E	Technology Readiness and Risk Assessment Worksheet ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/Technology_and_Risk_Assessment_Worksheets%20_and_Rollup_Tool/
AD-10	CSA-ST-RPT-0002 Rev. H	Technology Readiness and Risk Assessment Worksheets and Rollup Tool ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/Technology_and_Risk_Assessment_Worksheets%20_and_Rollup_Tool/
AD-11	CSA-ST-RPT-0003 Rev. A	Technology Roadmap Worksheet ftp://ftp.space.gc.ca/users/TRP/pub/TRM/

2.2 REFERENCE DOCUMENTS**TABLE 2-2 – REFERENCE DOCUMENTS**

RD No.	Document Number	Document Title
RD-01	CSA-DDVS-CD-0001 Rev. IR	DDVS Mission Concept Document ftp://ftp.space.gc.ca/users/DDVS/pub/
RD-02	CSA-SE-STD-0001 Rev. A	Systems Engineering Technical Reviews Standard ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/
RD-03	CSA-SE-PR-0001 Rev. B	Systems Engineering Methods and Practices ftp://ftp.space.gc.ca/users/TRP/pub/TRRA/

3 WORK REQUIREMENTS

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

These activities are related to deliverables. The Deliverables and Contract data requirements list (CDRL) as well as their associated Data Item Description (DID) can be found in the Appendices.

3.1 PROJECT MANAGEMENT

3.1.1 *Project Management Plan (PMP)*

The Contractor must provide and implement the Project Management Plan as per CDRL 1, or an equivalent Contractor format document.

The Project Management Plan 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.

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.

3.1.2 *Work Breakdown Structure and Description*

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

3.1.3 *Project Schedule*

Table 1-1 shows the expected Project Milestones Schedule, and Table 1-2 shows the Phase A meetings. The Contractor must track and update a detailed schedule that shows dependencies between tasks, durations, % complete, critical path, long lead items (if applicable) and constraints. The Contractor must maintain and deliver the Project Schedule as per CDRL 3 each month to reflect Phase A activity progress. The schedule must be based on the WBS, and must include all milestone and review meetings.

In addition, the Contractor must propose a Phase B, C, D schedule. This schedule must show dependencies between tasks, durations, % complete, critical path, long lead items and constraints. Any assumptions used to create the schedule must be clearly stated. The schedule must be as per CDRL 4, and must take into account the proposed list of meetings and milestones as per Appendix C.

3.1.4 Cost Estimate

The Contractor must evaluate cost projections, and include a Phase B, C and D Rough Order of Magnitude (ROM) Cost analysis according to CDRL 5. 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 also include a Phase E ROM Cost estimate, beginning from a successful commissioning, based on assumptions and using comparables from similar projects.

3.1.5 Project Management Control and Progress Reporting

The Contractor must provide Monthly Progress Reports (per CDRL 6) to the CSA and to the Contracting Authority, no later than 7 working days after the end of the month covered by the report.

In addition, the Contractor must conduct weekly project status meetings with the CSA to review the project status and to resolve unforeseen and urgent issues. The selection of participants will depend on the nature of the issue. These meetings will be held by teleconference.

3.1.6 Risk Management

The Contractor must continuously identify and monitor areas of cost, schedule, programmatic and technical risk and must identify and implement risk reduction/resolution/mitigation activities. The Contractor must assess and report the status of risk elements in the Monthly Progress Report (CDRL 6).

3.1.7 Intellectual Property

The Contractor must explicitly define the Foreground Intellectual Property (FIP) generated during the execution of the contract and report this in the IP Disclosure Report (CDRL 12). This document must also identify the Background Intellectual Property (BIP) that is required to use the FIP. The BIP disclosure provided with the proposal as per CDRL 12 must be updated if applicable.

3.1.8 Benefits Analysis

The Contractor must provide benefits analysis inputs as per CDRL 13. This information will be used to provide management with a strong case that links investments with program results and, ultimately, with the strategic outcomes of the organization. The Contractor must address, at a minimum, the following topics:

1. Socio-Economic Benefits for Canadians
2. Supports Canadian Key Industrial Capabilities
3. Commercialization Potential
4. Positions Canada for future exploration
5. Potential to Inspire Canadians
6. Demonstrates multiple use and application of knowledge acquired from past space exploration missions
7. Supports multiple destinations
8. Canadian Capability – 80% Canadian content
9. Partnerships – government, domestic or international

10. Produces new products, processes and/or technologies
11. Know-how acquired through exploration endeavours
12. Potential to transfer know-how and technology to other applications (including terrestrial)

3.2 SAFETY & MISSION ASSURANCE

3.2.1 Product Assurance Implementation Plan (PAIP)

The Contractor must produce a PAIP as per CDRL 21. The PAIP must be in accordance with the DDVS Requirement Documents (AD-01, AD-02). The PAIP must define the approved methods of implementing the PA requirements within all organizations in the project.

3.2.2 Qualification Status List

The contractor must provide a preliminary Qualification Status List as per CDRL 22. This list demonstrates that the contractor has identified the Critical Technologies from the Technology Readiness Risk Assessment and has a plan for qualification of these items at the part, subsystem or system level. The contractor must clearly show the Technology Readiness Level for technologies used on the program.

Each item that is not already qualified must be included in the Qualification Status List. For each item in the Qualification Status List, a preliminary plan for the qualification method, environment, levels and duration must be identified.

3.3 ENGINEERING

3.3.1 Technology Readiness and Risk Assessment (TRRA) and Roadmap

The TRRA is used to assess project status and technical risks, and to guide definition of risk reduction work in the current and following phases. The Contractor must perform a Technology Readiness and Risk Assessment (TRRA) twice: the first version was a draft version performed and submitted with proposal, and the second (final) version must be performed during Phase A, after a successful Conceptual Design Review (CDR), using results from the technology risk mitigation activities and analyses.

The first assessment was performed on the Bidder's proposed concept, and submitted with the proposal in Contractor format as per the Evaluation Criteria. The objective was to propose Phase A risk mitigation development activities arising from this assessment and to prioritize these activities. The proposed plan must be executed, maximizing the amount of development work that can be performed during Phase A within the schedule and budget limitations provided in this RFP. (See Section 3.3.1.1 for more information).

The second (and final) assessment must be performed on the Phase A concept following the Conceptual Design Review (CDR). The objective of this assessment is to propose risk mitigation development needs for future phases.

The final assessment must be performed in accordance with the requirements of the CSA Technology Readiness and Risk Assessment Guidelines (CSA-ST-GDL-0001) and the

Technology Readiness Levels (TRL) Handbook for Space Application (ESTEC, TEC-SHS/5574/MG/ap), to formally document the system technology status. The Contractor must produce a report for the TRRA using the Critical Technology Elements (CTE's) Identification Criteria Worksheet (CSA-ST-FORM-0003), Technology Readiness and Risks Assessment Worksheet (CSA-ST-FORM-0001) and provide these worksheets for each CTE and Rollup using (CSA-ST-RPT-0002).

The Contractor must provide a Technology Development Plan, also known as the Technology RoadMap (TRM) including the required technology developments to meet mission needs, and a plan and timeline to reach TRL 6 and 8. The Technology Development Plan must be provided in the format of CDRL 14 and the results of the TRRA in the Stand Alone Report format of CDRL 15, or in Contractor Format if it meets or exceeds the intent of CDRL 15.

3.3.1.1 Phase A Risk Mitigation Activities

The Contractor must conduct comprehensive Phase A risk mitigation activities which are a result of the proposed Technology Development Plan (CDRL 14) submitted by the Contractor in the proposal. The activities target the CTE's that were identified in the TRRA conducted on the proposed concept in the Bid. The work plan associated with these activities is described in the proposal submitted by the Contractor, and the Contractor must continue to track and update the work packages as per CDRL 2 and the schedule as per CDRL 3. This work is critical to mission success, as it mitigates the technical risk for the subsequent phases.

3.3.2 System Concept of Operations

The Mission Level Concept of Operations is described in AD-03 and AD-04. The Contractor must produce a System Concept of Operations by iterating on these documents and by elaborating on elements specific to the proposed concept. The Contractor should provide feedback and recommendations for changes to AD-03 and AD-04. The concept of operations must include, when applicable, the information listed in CDRL 16 (System Concept of Operations), and can be presented in Contractor Format. Where appropriate, the Contractor may refer to sections AD-03 and AD-04 to avoid replication of data.

3.3.3 System Conceptual Design

The Contractor must develop a system conceptual design of the DDVS. This conceptual design must be presented in the System Conceptual Design Document (CDRL 17), and will be reviewed at the Conceptual Design Review (CDR) in its preliminary form, and at the SRR in its final form.

The conceptual design is tailored to meet the system requirements and is feasible within appropriate margins (mass, power, data rate, etc.). It assists in finalizing the design of the system and allocating the requirements to subsystems, to demonstrate its feasibility, to support programmatic estimates.

Although the deliverable is defined by CDRL 17, it is generic in nature. The following items are specified in more detail for the DDVS project and must be included.

3.3.3.1 Product Breakdown Structure

The Contractor must establish a product tree to define the functional decomposition of the DDVS into subsystems. As this Product Breakdown Structure (PBS) is produced for the TRRA, it may

be identical. 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.

3.3.3.2 Trade-off Studies

The trade-off analyses demonstrate that the system 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. As a minimum, the following must be considered for each trade-off study:

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

3.3.3.3 Preliminary Verification Compliance Matrix

The integrated Verification Compliance Matrix must perform the following functions:

1. Establish the traceability from the system requirements, traceable to the DDVS Mission and PAR Requirements (AD-01 and AD-02);
2. Show the verification method(s) for each requirement as per SE Methods and Practices (RD-03), Section 5.5.2.

3.3.3.4 Analyses

Analyses are required in order to support the understanding of different design choices, budgets and to predict the performance of the different instruments.

As per CDRL 17, the Conceptual Design Document must present the analyses performed, main results and problems encountered. The conceptual design document presents a summary of the analyses. Each fully detailed analysis report, in Contractor format, must also be provided as per CDRL 18.

3.3.3.4.1 Thermal Analyses

Due to the challenging environment on the ISS, the thermal management system is considered a risk item that must be monitored in the subsequent phases of the project. Therefore, along with other analyses deemed relevant by the Contractor, the following analysis must be provided along with a report in Contractor format:

The Contractor must perform a preliminary thermal analysis for the following defined “worst-cases” in the ISS environment. The analysis must consider two operational configurations – one for inspection, and one for relative navigation. The analysis must consider the following parameters:

- a. Powered to Keep-Alive (KA) (5hrs)

- b. Operational (4hrs) for Relative Navigation subsystem only as per Mission Requirement MRQ-PRF-DDVS-002 (Reference AD-01)
- c. Powered off (3hrs) during Mobile Transported (MT) translation
- d. Operational time when using all three inspection modes simultaneously
- e. Operational time when using individual inspection modes
- f. Provide mass budget for thermal control materials, e.g. Multi-layer insulation (MLI), radiative surfaces, heaters
- g. Thermal control options and tradeoffs with given DDVS power constraints and the ISS thermal environment
- h. Propose plan of Verification and Validation (V&V) for thermal designs
- i. Analysis of open issues and the potential solutions for thermal controls

3.3.3.5 Engineering Budgets and Margins

Budgets play a central role from a systems engineering standpoint. CDRL 17 (the System Conceptual Design) states that budgets must be presented on a per-subsystem basis.

The budgets must include a summary of the engineering budgets and Technical Performance Measurements (TPMs), margins, and their allocation to subsystems.

The budget must include, as a minimum:

1) Physical resources

- a) Mass: this section must indicate the current allocated System mass, the current estimated mass, and the current mass margin; mass estimates should be broken down to the unit level.
- b) Power (steady-state and transient peaks): this section must provide estimates of power consumption (maximum, minimum) and available load power (maximum, minimum) against the Requirements Document.
- c) Volume: this section must indicate the current allocated instrument volume, the current estimated volume, and the current volume margin; volume estimates should be broken down to the unit level.

2) Computer resources

- a) Processor usage: for each microprocessor used in the System, this section must allocate a processing capacity budget and estimate the average and peak loading on the processor, as well as calculate the processing margin.
- b) Memory usage: for each microprocessor used in the System, this section must allocate a Random Access Memory (RAM) and Electrically Erasable Programmable Read-Only Memory (EEPROM) usage budget and estimate the current memory margin.

3) **Communication bandwidth:** for all onboard data equipment, this section must allocate a communication bandwidth budget between subsystems (down to the unit level) and estimate the current margin against the data Instrument bandwidth.

4) **Command and Telemetry:** present an allocation of Command and Telemetry budget and estimate the current rate and volume of commands and telemetry in each subsystem.

- 5) **Reliability** (probability of success): present an estimate of reliability, and a calculation of the reliability margin against the DDVS System Requirements Document.
- 6) **Instrument-specific performance criteria and parameters:** include an error budget, which must present the error budget for the overall instrument performance and the allocations to the various sources of measurement errors.
- 7) **Radiation:** provide a preliminary assessment of the radiation budget for total dose and margin.

3.3.4 CAD Models

The CAD models produced during Phase A must be as per CDRL 19.

3.3.5 Verification Approach

The Contractor must produce a preliminary verification approach, high level test planning, and model philosophy during Phase A. This approach must meet the requirements detailed in both Requirements Documents (AD-01, AD-02). It must be in accordance with the SE Methods and Practices (RD-03), subsections deemed relevant by the contractor within Section 5.5. The verification approach must be delivered in contractor format as per CDRL 23.

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
2. Model Philosophy

The recommended approach for the Verification Philosophy and Model Philosophy will be reviewed at the Preliminary Qualification Status Review (PQSR).

Note that there are currently no requirements regarding spare parts nor spare models. The Contractor must provide recommendations for a sparing approach. Spares must be procured in sufficient quantities to ensure that all System models are maintained in fully operational condition to support debugging, protocol tests and validation, baseline data collection, to test new methods, among other activities. This is to support a minimum of 5 years of ISS space operations, beginning from commissioning activities.

The recommended approach for Sparing will be reviewed at the Preliminary Qualification Status Review (PQSR).

3.3.6 System Requirements

The Contractor must define and develop the DDVS systems requirements according to the directions, content and properties described in the System Requirements Document (SRD) as per CDRL 20.

3.3.7 Interface Control Document

The Contractor must provide an Interface Control Document (ICD) as detailed in CDRL 24. A Mission-Level ICD is provided by the CSA (AD-05), and must be used by the contractor as high-level input for interfaces between the instrument and the surrounding ISS environment and equipment. The ICD to be developed must include all external and internal interfaces, and must encompass all of relevant details that the CSA (AD-05) document contains.

3.4 MEETINGS AND REVIEWS

3.4.1 Kick Off Meeting (KOM)

The contractor must support a KOM at the CSA in the first month after Contract award. The Work must start when the contract starts, not pending the KOM. The purpose of the KOM is to introduce the Contractor and CSA teams, review the scope of work, the schedule, the basis of payment and discuss any other topics as required. All key participants under the contract, including representatives from each major subcontractor, must attend. Attendance of some team members by telcon is acceptable if agreed with the CSA prior to the meeting.

3.4.2 Preliminary Qualification Status Review (PQSR)

The contractor must prepare for and conduct a PQSR. The purpose of the review is to demonstrate that the contractor has identified the Critical Technologies from the Technology Readiness Risk Assessment and has a plan for qualification of these items at the part, subsystem or system level. The preliminary Qualification Status List (CDRL 22) and a Preliminary Product Assurance Implementation Plan (PAIP) (CDRL 21) will be reviewed.

In addition, the Contractor must submit their Verification Approach (as per CDRL 23) for review, and it must demonstrate that the chosen model philosophy and proposed test flow will meet the qualification and verification needs of the program.

The criteria to pass this review is to disposition all action items that are raised during the review to the satisfaction of the CSA.

3.4.3 Conceptual Design Review (CDR)

The purpose of the CDR is to describe the preliminary system conceptual design proposed to meet the mission requirements. The format of the review meeting will be to review the preliminary System Conceptual Design (CDRL 17). The criteria to pass this review is to disposition all action items that are raised during the review to the satisfaction of the CSA.

3.4.4 System Requirement Review (SRR)

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 SRR must meet the objectives, entry and exit criteria detailed in the Systems Engineering Technical Reviews Standard (RD-02). The SRR Review Data Package (CDRL 11) must include as a minimum the CDRLs as per the due date and version in the CDRL (Table A-1).

The objectives of the SRR are summarized as follows (Reference RD-02):

1. The mission requirements have been logically and fully flowed down to the system requirements.
2. The system, human factors, environmental, design and interface requirements have been defined, and are verifiable.
3. The system conceptual design is tailored to meet 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 Safety and Product Assurance (PA) Requirements are defined;
10. Substantiated and validated life-cycle costs and project schedule have been established for the whole project;
11. The execution of the Project Implementation Plan can be reasonably expected to result in the successful completion of the project within imposed constraints, financial, schedule and human resources;
12. If applicable, a formal Joint Implementation Plan with the partner(s) is agreed, signed and in place;

3.5 DOCUMENT DELIVERABLES

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

3.5.1 Document Deliverables, Format and Content

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

Alternatives to the Data Items Descriptions (DIDs) document format, content and submission methods are acceptable to the CSA. However, the alternative Contractor format must meet the intent of the stated 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 TA.

3.5.1.1 Documents Approval

The TA will provide approval or disapproval within fifteen (15) working days of receiving the document. In the event that a document is disapproved, the 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 TA deems are required for approval. With this notification, the TA will provide the allowable delay for re-submission.

APPENDICES

A DELIVERABLES AND CONTRACT DATA REQUIREMENTS LIST (CDRL)

A.1 DATA DELIVERABLES

Data Deliverables must be delivered as per Table A-1.

LEGEND

- **MILESTONES**
 - **CDR** = Conceptual Design Review
 - **PQSR** = Preliminary Qualification Status Review
 - **SRR** = System Requirement Review

- **OTHERS**
 - **CF** = Contractor Format
 - **F** = Final
 - **IR** = Initial Release (90-100% completed)
 - **M** = Monthly
 - **D** = Draft (70-80% completed)
 - **U** = Updated
 - **P** = Preliminary (as per associated DID)

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

CDRL No.	Category	Deliverable	Due Date	Version	DID No. or Cont. Format ***
1	PM	Project Management Plan	Proposal	Final	0001 or Cont. format
2	PM	WBS and Work Package Description	Proposal	Final	0002 or Cont. format
3	PM	Project Schedule – Phase A	Proposal Monthly	IR Update	0004 or Cont. format
4	PM	Project Schedule – Phases B,C,D	SRR-10 Days	Final	0004 or Cont. format
5	PM	Cost Estimates	SRR – 10 Days	Final	0103 or Cont. format
6	PM	Monthly Progress Reports	Monthly	Final	0003 or Cont. format
7	PM	Meeting Agendas	Meeting – 5 working days	Final	0005 or Cont. format
8	PM	Meeting Minutes	Meeting + 5 working days	Final	0006 or Cont. format
9	PM	Action Items Log (AIL)	Meeting + 5 working days	Final	0007 or Cont. format
10	PM	Meeting/Review Presentations	Meeting – 5 working days	Final	Cont. format
11	PM	Review Data Package	SRR – 10 working days	IR	0008
12	PM	BIP/FIP Disclosure Report	Proposal (BIP) End of Contract (BIP/FIP)	IR Final	0011
13	PM	Benefits Analysis	SRR-10 working days	Final	Contractor format
14	SE	Technology Roadmap Worksheet	With proposal (using proposed concept) SRR– 10 working days (using CDR Concept)	Draft Final	0012 or Cont. format

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CDRL No.	Cate gory	Deliverable	Due Date	Version	DID No. or Cont. Format ***
15	SE	Technology Readiness and Risk Assessment with Stand Alone Report	With proposal (using proposed concept) SRR– 10 working days (using CDR-approved Concept)	Draft Final	0013 or Cont. format
16	SE	System Concept of Operations	SRR-10 working days	Final	0009 or Cont. format
17	SE	Conceptual Design	Conceptual Design Review SRR – 10 working days	Preliminary Final	0010 or Cont. format
18	SE	Analyses	Conceptual Design Review SRR – 10 working days	Draft Final	Cont. format
19	SE	CAD Models	Conceptual Design Review SRR – 10 working days	Draft Final	0600
20	SE	System Requirements Document (hardware and software)	SRR – 10 working days	Final	0017 or Cont. format
21	PA	Product Assurance Implementation Plan (PAIP)	PQSR SRR – 10 working days	IR Final	0029 or Cont. format
22	PA	Qualification Status List	PQSR SRR – 10 working days	IR Final	0365 or Cont. format
23	SE	Verification Approach	PQSR SRR – 10 working days	IR Final	Cont. format
24	SE	Interface Control Document (ICD) (Hardware and Software)	CDR SRR– 10 working days	IR Final	0030 or Cont. format

*** Cont. format = format chosen by the Contractor which meets or exceeds the intent of the applicable DID if provided.

B DATA ITEM DESCRIPTIONS

DID-0000 - GENERAL PREPARATION INSTRUCTIONS	21
DID-0001 - PROJECT MANAGEMENT PLAN	23
DID-0002 – WBS AND WORK PACKAGE DESCRIPTIONS	26
DID-0103 – PROJECT COST ESTIMATES	27
DID-0003 – PROGRESS REPORT	29
DID-0004 – PROJECT SCHEDULE	31
DID-0005 – MEETING AGENDA	32
DID-0006 – MINUTES OF MEETINGS	33
DID-0007 – ACTION ITEMS LOG	34
DID-0008 – REVIEW DATA PACKAGES	35
DID-0009 – SYSTEM CONCEPT OF OPERATIONS	36
DID-0010 – SYSTEM CONCEPTUAL DESIGN DOCUMENT	38
DID-0600 – COMPUTER-AIDED DESIGN (CAD) MODELS	40
DID-0011 – BACKGROUND AND FOREGROUND INTELLECTUAL PROPERTY (BIP/FIP) DISCLOSURE REPORT	41
DID-0012 – TECHNOLOGY ROADMAP WORKSHEET	44
DID-0013 – TECHNOLOGY READINESS AND RISK ASSESSMENT WITH STAND ALONE REPORT	45
DID-0017 – SYSTEM REQUIREMENT DOCUMENT	48
DID-0029 - PRODUCT ASSURANCE IMPLEMENTATION PLAN (PAIP)	50
DID-0365 – QUALIFICATION STATUS LIST	51
DID-0030 – INTERFACE CONTROL DOCUMENT (ICD)	53

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
-

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, 2015

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. DELIVERY METHODS:

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

- 2.1.1. Documents and data may be delivered via

- a. CSA PIE-ISEP document portal;
- b. e-mail attachments;
- c. direct transfer (FTP);
- d. retrieval from the contractor’s repository, once CSA has received a notification of the document’s release and its location in the repository; or
- e. DVD or CD-ROM media.

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- 2.1.2. Electronic documents and data or notifications of their availability must be sent to the CSA CM Receipt Desk: CM_Receipt@asc-csa.gc.ca
- 2.1.3. If deliverables contain ITAR content, notifications of their availability on contractor repositories must be sent to: CSA-CM-ITAR@asc-csa.gc.ca
- 2.1.4. Emails 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.
- 2.1.5. Media or hard copy deliverables are to be addressed to:

CM Library, 6A-100
Attention: CSA <<Project Name>> Project
Canadian Space Agency
6767, Route de l'Aéroport
Saint-Hubert, QC, J3Y 8Y9
CANADA
- 2.1.6. The DVD/CD-ROM labels must include the following information:
 - a. Contractor Name
 - b. Contractor CAGE Code
 - c. Document Title
 - d. Document Number
 - e. Document Revision
 - f. Document Release Date
 - g. Contract Number
 - h. CDRL Identifier
 - i. Security Designation of the contents. Indicate if contents are subject to ITAR, when applicable.
- 2.1.7. Media or hard copy deliverables containing classified information, protected information or ITAR information are to be in compliance with the Canadian Government Security Policy, Access to Information Act and the Privacy Act.

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 shareholders;
- 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. It must address:

- a) Initiation;
- b) Scope Planning;
- c) Scope Definition;
- d) Scope Verification; and
- e) Scope Change Control.

4) Project Time Management

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

- a) Activity Definition;
- b) Activity Sequencing;
- c) Activity Duration Estimating
- d) Schedule Development; and
- e) Schedule Control.

This section must include the detailed project baseline schedule down to the activity level. The baseline schedule must include all elements of the WBS and must depict all linkages and dependencies.

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. It must address:

- a) Resource Planning;
- b) Cost Estimating;
- c) Cost Budgeting; and
- d) Cost Control.

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. It must address:

- a) Quality Planning;
- b) Quality Assurance; and
- c) Quality Control.

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. It must address:

- a) Organisational Planning;
- b) Staff Acquisition; and
- c) Team Development.

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. It must address:

- a) Communications Planning;
- b) Information Distribution;
- c) Performance Reporting; and
- d) Administrative Closure.

9) Project Risk Management

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

- a) Risk Identification;
- b) Risk Quantification;
- c) Risk Response Development; and
- d) Risk Response Control.

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. It must address:

- a) Procurement Planning;
- b) Solicitation Planning;
- c) Solicitation;
- d) Source Selection;
- e) Contract Administration; and
- f) Contract Closeout.

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 and work package acceptance criteria;
- j) Issue date;
- k) Version number; and
- l) List of deliverable with delivery milestone.

DID-0103 – 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.

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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-0003 – Progress Report**PURPOSE:**

The Progress Report records the status of the work in progress during the previous calendar period. The Progress Report is used by the Government to assess the Contractor's progress in performance of the work.

PREPARATION INSTRUCTIONS:

The Progress Report must comprise, but not limited to, the following sections:

- 1) *Summary of progress this month*: must provide a summary of main activities accomplished during the month.
- 2) *Discussion of planned activities not accomplished*: must provide a summary of main activities not accomplished during the month, the reasons why and the potential impact on the project plan.
- 3) *Planned work next month*: must provide a summary of the planned important accomplishments for the following month, and must be limited to half a page.
- 4) *Technical/Design status*: must provide a summary of the status and description of the design, manufacturing, assembly, integration and testing activities accomplished during the month covering the following items:
 - a) *Key requirements*;
 - b) *Major trade off studies*;
 - c) *Design verification activities*;
 - d) *Interface definition and development*;
 - e) *Procurement status and issues*;
 - f) *Major internal technical issues*;
 - g) *Summary of waivers & Engineering Change Requests (ECRs)*;
 - h) *Problem/failure reports*;
- 5) *Long-lead items*: must describe the hardware and software long lead items (including need dates) that are required for the production of the models (EQM and FM), if applicable;
- 6) *Brief discussion of problems/concerns*: must provide a summary of the current problems/concerns, their impact on the current plan, the plan to mitigate them and expected support from CSA to help resolve the situation.
- 7) *Schedule status*: must be in the form of a table showing, for each milestone, the baseline date, the planned completion date and the variance. A short narrative must provide a rationale for any variance.
- 8) *Financial status*: must provide an updated milestone payment schedule.

- 9) Risk posture analysis: Risk status report including previous issues resolved, status on on-going risks (changes and impacts), and identification of new risks, their impact and proposed mitigation action.

Each progress presentation must answer the following three questions:

- 1) Is the project on schedule?
- 2) Is the project within budget?
- 3) Is the project free of any areas of concern in which the assistance or guidance of the CSA may be required?

Each negative response must be supported with an explanation.

DID-0004 – Project Schedule**PURPOSE:**

To provide a schedule planning and control system for the project and to provide visibility to the CSA into the program progress and status.

PREPARATION INSTRUCTIONS:

The project schedule must be based on the WBS, in the form of a Gantt chart. The project schedule must be detailed enough to show each WBS task to be performed, and must provide the following information:

- 1) dependencies,
- 2) the start and end date of each task (baseline and actual),
- 3) task duration,
- 4) completion status in percentage;
- 5) deadlines and milestones,
- 6) long lead items, and
- 7) critical path
- 8) margin

The schedule must show dependencies between the Contractor and other organizations.

The tasks related to deliverables must be limited to three months in the project schedule. When applicable, the Contractor must divide longer tasks into smaller significant tasks.

Tasks that are not related to any specific deliverable, such as Project Management and Quality Assurance activities, must be grouped separately from the groups of deliverables, and must be shown at the top of the chart. The schedule must be provided in MS project format or equivalent.

DID-0005 – Meeting Agenda**PURPOSE:**

To clarify the purpose and content of a meeting.

PREPARATION INSTRUCTIONS:

The meeting agendas must contain the following information, as a minimum.

1) DOCUMENT HEADER:

- a) Title;
- b) Type of meeting;
- c) Project title, project number, and contract number;
- d) Date, time, and place;
- e) Chairperson;
- f) Mandatory and desirable attendance; and
- g) Expected duration.

11) DOCUMENT BODY:

- a) Introduction, purpose, objective;
- b) Opening Remarks: CSA;
- c) Opening Remarks: Contractor;
- d) Review of previous minutes and all open action items;
- e) Project technical issues;
- f) Project management issues;
- g) Other topics;
- h) Review of newly created/closed action items, decisions, agreements and minutes; and
- i) Set or confirm dates of future meetings.

DID-0006 – Minutes of Meetings**PURPOSE:**

The minutes of reviews or meetings provide a record of decisions and agreements reached during reviews/meetings.

PREPARATION INSTRUCTIONS:

Minutes of meeting must be prepared for each formal review or meeting and must include the following information, as a minimum:

- 1) Title page containing the following:
 - a) Title, type of meeting, date, time and duration.
 - b) Project title, project number, and contract number,
 - c) Space for signatures of the designated representatives of the Contractor, the CSA and the Public Works and Government Services Canada (PWGSC), and
 - d) Name and address of the Contractor;
- 2) Purpose and objective of the meeting;
- 3) Location;
- 4) Agenda;
- 5) Summary of the discussions, decisions and agreements reached;
- 6) List of the attendees by name, position, phone numbers and e-mail addresses as appropriate;
- 7) Listing of open action items and responsibility for each action to be implemented as a result of the review;
- 8) Other data and information as mutually agreed; and
- 9) The minutes must include the following statement:

“All parties involved in contractual obligations concerning the project acknowledge that minutes of a review/meeting do not modify, subtract from, or add to the obligations of the parties, as defined in the contract.”

DID-0007 – Action Items Log**PURPOSE:**

The Action Item Log (AIL) lists, in chronological order, all items on which some action is required, allows tracking of the action, and in the end provides a permanent record of those Action Items (AI).

PREPARATION INSTRUCTIONS:

The Action Item Log (AIL) must be in a tabular form, with the following headings in this order:

- 1) Item Number;
- 2) Item Title;
- 3) Description of the action required;
- 4) Open Date;
- 5) Source of AI (e.g. Review meeting, RID, etc.);
- 6) Originator;
- 7) Person responsible (for approving closure of the action);
- 8) Person responsible (for taking action);
- 9) Target/Actual Date of Resolution;
- 10) Progress update;
- 11) Rationale for closure;
- 12) Status (Open or Closed); and
- 13) Remarks.

The date in column 9) will be the target date as long as the item is open, and the actual date once the item is closed.

DID-0008 – Review Data Packages**PURPOSE:**

The Review Data Package is a collection of all documents to be presented by the Contractor for all formal Technical Reviews:

PREPARATION INSTRUCTIONS:

Each Review Data Package must contain the documents identified in the CDRL (Table A-1) as due for that review, plus the presentations made at the meeting, the agenda, the minutes, and the AI list.

DID-0009 – System Concept of Operations

PURPOSE:

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

PREPARATION INSTRUCTIONS:

This document must be prepared in accordance with standard ANSI/AIAA G-043-1992 - Guide for the Preparation of Operational Concept Documents.

The System 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-0010 – 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) 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;
- 3) Trade-offs: criteria definition, analysis, criteria results, decisions;
- 4) Design decisions: rationales for design choices;
- 5) Budgets: a summary of the engineering budgets and TPMs, and margins, their allocation to subsystems;
- 6) 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;
- 7) Analyses: summarizing the analyses performed, main results and problems encountered; this is a summary of each full analysis report presented separately;

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- 8) Tests: summarizing the tests to be performed to verify the performance and environmental requirements;
- 9) Operations concepts: summarizing the operations of the system in both nominal and contingency conditions;
- 10) Maintenance approach: describing the maintenance approach especially for maintainable items such as the spares for manned systems, flight software and ground systems;
- 11) Matrix: To demonstrate design compliance to requirements by providing clear link between design and requirements. Indication of design compliance, non-compliance and partial compliance.

DID-0600 – 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: STEP AP203 (.stp);
- b) Electrical design: .dsn, .sch, Pspice and Gerber formats;
- c) Thermal Design: 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

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-0011 – 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
<i>Provide ID # specific to each BIP element brought to the project e.g. BIP-CON-99 where CON is the contract acronym</i>	<i>Describe the system or sub system in which BIP is integrated (e.g. camera, control unit, etc)</i>	<i>Use a title that is descriptive of the BIP element integrated to the work</i>	<i>Is the BIP in the form of an invention, trade secret, copyright, design, patent?</i>	<i>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)</i>	<i>Describe briefly the nature of the BIP (e.g. mechanical design, algorithm, software, method, etc)</i>	<i>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.</i>	<i>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.</i>	<i>Name the organization that owns the BIP. Provide the name of the subcontractor if not owned by the prime contractor.</i>

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
<p><i>Enter an ID # specific to each FIP element</i></p> <p><i>e.g. FIP-CON-99</i></p> <p><i>where CON is the contract acronym</i></p>	<p><i>Describe the system or sub-system for which the FIP element was developed (e.g. a camera, ground control, etc)</i></p>	<p><i>Use a title that is descriptive of the FIP element.</i></p>	<p><i>Specify the form of the FIP e.g. invention, trade secret, copyright, industrial design, patent</i></p>	<p><i>Specify the nature of the FIP e.g. software, design, algorithm, etc?</i></p>	<p><i>Provide the full title and number of the reference document where the FIP is fully described. The reference document must be available to Canada</i></p>	<p><i>BIP reference in table 1 e.g. BIP-CON-2, 15</i></p>	<p><i>Specify which organization owns the FIP e.g. Contractor, Canada* or Subcontractor.</i></p> <p><i>Provide the name of the subcontractor if not owned by the prime contractor.</i></p> <p><i>*If Canada is the owner of the FIP, complete Table 3 below</i></p> <p><i>Provide reference to contract clauses that support FIP ownership.</i></p> <p><i>Provide reference to WPDs under which the technical work has been performed.</i></p>	<p><i>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.</i></p>

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?
<i>ID# should be same as corresponding FIP element in Table2</i>	<i>Title of FIP should be same as corresponding FIP element in Table2</i>	<i>How is the FIP addressing a problem (useful) and what is thought to be novel in this solution (novel)?</i>	<i>Describe the limitations of present apparatus, product or process</i>	<i>Provide references in published literature or patents relating to the problem or subject if any.</i>	<i>Describe briefly how the process, product or apparatus performed during testing or simulation. Provide reference document # where the performance is compiled if applicable.</i>	<i>Provide name and coordinates of the person(s) who created the FIP</i>	<i>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.</i>

DID-0012 – Technology Roadmap Worksheet

PURPOSE:

The Technology Roadmap provides an overview of the required technology developments to meet mission needs and the plan and timeline to reach TRL 6 and 8.

PREPARATION INSTRUCTIONS:

The Technology Roadmap must be done using the format of the Technology Roadmap Worksheet (CSA-ST-RPT-0003).

DID-0013 – Technology Readiness and Risk Assessment with Stand Alone Report

PURPOSE:

The Technology Readiness and Risk Assessment (TRRA) 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 degree of difficulty in achieving the remaining technology development steps.

The TRRA provides for all the Critical Technology Elements (CTEs) of the proposed concept, as per the Product Breakdown Structure (PBS), a high-level summary of the maturity of the technologies and the technology development risks.

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

Agreement on the appropriate PBS level and identification of the CTEs is required prior to the TRRA leading to the elaboration of the TRRA Report. For each CTE the TRRA Report captures the key requirements, heritage, Technology Readiness Level (TRL) achieved, Technology Need Value (TNV), the Research and Development Degree of Difficulty (R&D3) to complete the development, and references to supporting evidence for all assessments.

PREPARATION INSTRUCTIONS:

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

1) Introduction

This section should include

- (1) Project Description;
- (2) Purpose of Document;
- (3) Scope.

This section must include

- (4) Applicable Documents (which must include the following):
 - (a) TRRA Guidelines (CSA-ST-GDL-0001 at latest approved revision).
- (5) Reference Documents (which must include the following):
 - (a) TRL Handbook for Space Applications (TEC-SHS/5574; ESTEC);
 - (b) All evidence documents referred to in body of report.

2) Mission Objectives

This section must provide an overview of the mission, describing the key mission requirements and any assumptions.

3) Mission Environment

This section must 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

This section must provide a table or diagram with hierarchy of PBS and element numbers.

This section must provide schematics illustrating the elements of the PBS and their parts.

5) Key Performance Parameters (KPPs) for each CTE

This section must describe the Key Performance Parameter(s) identified for each PBS element (where applicable). The KPP description must identify what parameter value/range is currently achievable and what is required.

6) Critical Technology Elements (CTEs)

- i) Description of the CTE;
- ii) Rational for selecting the CTEs.

The intent of this section can be met by completing and cross-referencing the Critical Technologies Elements Identification Criteria Worksheet (CSA-ST-FORM-0003).

7) Technology Maturity and Viability Assessments

This section must include a sub-section for each CTE covering:

- (1) Description;
- (2) Main requirements (including KPP(s) associated with this CTE);
- (3) Heritage and compliance;
- (4) TRL achieved;
- (5) R&D3;
- (6) TNV.

The intent of this section can be met by completing and cross-referencing the applicable Technology Readiness and Risk Assessment Worksheet (CSA-ST-FORM-0001) for each CTE and including the Technology Risk Matrix generated from the Technology Readiness and Risk Assessment Data Rollup Tool (CSA-ST-RPT-0002).

8) TRRA Summary and Recommendations

This section must include a Summary table of results with columns covering:

- PBS # ; Technology Name; TRL (calculated); TNV (user input);

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- R&D3 (user input); TNV • Δ -TRL (calculated); /R&D3/ (calculated).

This section must present a summary of remaining Technology R&D Options, Risks, Cost, and Feasibility for each CTE of the PBS.

This section must summarize the recommended technology development plan and should refer to a separate Technology Development Plan report if appropriate.

9) Conclusions

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

10) APPENDIX A – Technology Readiness and Risk Assessment Worksheets

This section must include, or refer to an attachment which includes, all of the completed worksheets: the Critical Technologies Elements Identification Criteria Worksheet (CSA-ST-FORM-0003), the Technology Readiness and Risk Assessment Worksheet (CSA-ST-FORM-0001 for each CTE and rollup using the Technology Readiness and Risk Assessment Data Rollup Tool (CSA-ST-RPT-0002). These worksheets will be provided by CSA.

DID-0017 – 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;

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- 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-0029 - Product Assurance Implementation Plan (PAIP)

PURPOSE

The Product Assurance Implementation Plan (PAIP) describes the Product Assurance organisation, objectives, and activities planned for the project. The PAIP provides the Government with insight into the Contractor's PA organisation, tasks, and activities and allows the Government to assess compliance with the governing PA requirements.

PREPARATION INSTRUCTIONS

General Requirements

The PAIP must, as a minimum, provide the following information:

- 1) An overview of the objectives to be achieved by the plan;
- 2) Identification of the organisations in the company responsible for applying the provisions of the PAIP: organisational structure, relationships to other organisations within the project and company as with personnel identification and required skill levels;
- 3) PA plans for monitoring the different phases of the program development, for problem reporting and for ensuring corrective actions are taken;
- 4) Frequency, format, and content of reports submitted by PA to program management to report program progress as well as problems, risks, and proposed solutions;
- 5) A list of applicable general standards and practices which will be followed in the implementation of the plan;
- 6) A list of applicable in-house PA procedures, as well as PA procedures specific to the project and/or applicable to all project participants, with cross-reference to the compliance matrix below;
- 7) A compliance matrix testifying to the compliance with the requirements which clearly states for each requirement whether the contractor intends to comply with the requirement and rationale for partial or non-compliance.
- 8) A Parts, Materials and Processes Control Plan that describe the approach, methods, procedures and organisation that will be implemented to assure compliance to the parts/materials/processes program requirements.
- 9) Details on how government rights to access the premises and the program data will be implemented by the contractor;
- 10) Detail objectives and tasks to be performed to ensure reliability and availability requirements are adequately implemented.
- 11) Detail the plan and tasks to be performed to ensure that Configuration and Data Management (CADM) is carried out according to the CADM requirements.
- 12) Detail plans for the implementation of the Safety Program and how the program will ensure compliance to the safety requirements.

DID-0365 – Qualification Status List**PURPOSE:**

The Qualification Status List (QSL) provides a qualification status of all hardware/software used in the system, and rolls up all lower units into a consolidated status list; the qualification categories of specific items are summarized.

PREPARATION INSTRUCTIONS:

The qualification status of each component of the prime item must be listed in table form. In the table, columns must be provided to show:

- 1) Item/Part Designation (Ref. or Log Number)
- 2) Description (including subsystem/unit name and specification/part number, revision level)
- 3) Manufacturer / Supplier (or subcontractor), name, category
- 4) Qualification Status: one of the following categories must be used:
 - a) Identical to a flight, proven/qualified equipment operating in orbit at the time of reporting,
 - b) Adapted from a flight, proven/qualified equipment, operating in orbit at the time of reporting,
 - c) To be qualified during the present program,
 - d) Already qualified as part of the present program, and
 - e) Heritage: see next item;
- 5) Heritage: (list of other missions of same or longer mission life, and same or worse environment)

Heritage based on: a) flight history, or b) similarity with change identification. Detailed information will be provided or referenced in order to provide comparison (environments and durations) between the current mission and those presented as heritage. Each element of qualification test should be addressed specifically, such as mission duration, SEE, temperature extremes, shock, vibration, etc.

- 6) Method of qualification: Test description, test levels and models used:
 - a) Acceptance, protoflight, qualification, life tests
 - b) Level of testing: part, unit, system, etc.,
 - c) Nature of the tests (vibration, thermal, etc.,
 - d) Model used: BBM, EM, EQM, QM or PFM;
 - i) BBM: Breadboard Model
 - ii) EM: Engineering Model

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iii) EQM: Engineering Qualification Model

iv) QM : Qualification Model

v) PFM: Protoflight Model

7) Estimated qualification date.

Each item that is not already qualified must be included in the Qualification Program. For each item in the Qualification Program, the Qualification method must be identified.

DID-0030 – Interface Control Document (ICD)

PURPOSE:

To define and control the interface between several cooperating or attached Hardware Configuration Items (HWCI) or Configuration Software Configuration Items (CSCI).

PREPARATION INSTRUCTIONS:

The ICD may describe the interfaces between a system or subsystem and all external systems or subsystems with which it interfaces (External ICD), or it may define all interfaces amongst subsystems within a system (Internal ICD).

Examples of External ICDs are:

- Spacecraft-to-Launch Vehicle ICD
- Spacecraft-to-Ground Segment ICD

Examples of Internal ICDs are:

- Spacecraft Internal ICD (e.g. between Bus and Instrument)
- Ground Segment Internal ICD

Systems may be manned or unmanned; they may be space or ground systems such as Ground Segment facilities. The specific requirements below must be tailored accordingly.

The ICD may be structured by types of interfaces (as defined above), or by subsystem and then by types of interfaces under each subsystem.

The ICD must contain the following information, as a minimum, tailored as required by the type of ICD as described above, and the particular system and interfaces being defined:

1. Purpose and Scope
2. Applicable and Reference Documents
3. Identification (name, number) and brief overview of the system and role within the system, of the interfaces to which the ICD applies
4. Interface diagrams showing by name and identifier all interfaces among the HWCI and CSCI to which this ICD applies
5. Identification (name, identifier) and purpose of each of the interfaces
6. Physical / Mechanical Interfaces
 - 6.1. Coordinate System
 - 6.2. Dimensions and tolerances
 - 6.3. Units of measurement
 - 6.4. Envelope, Volume and Mass Properties
 - 6.5. Attachment methods
 - 6.6. Alignment features

7. Structural/Mechanical Interfaces
 - 7.1. Applied Loads and Disturbances (including random vibrations, frequency spectrum)
 - 7.2. Acoustics
 - 7.3. Depressurization/Repressurization
 - 7.4. Ground Handling Environment
8. Thermal/Fluids Interfaces
 - 8.1. General Requirements (touch temperature, condensation prevention, etc.)
 - 8.2. Thermal Environment
 - 8.3. Instrument/Subsystems Cooling
 - 8.4. Vacuum Exhaust Interfaces
9. Electrical Power Interfaces
 - 9.1. Electrical Power Requirements, Sources and Allocation
 - 9.2. Power Supply characteristics and limits
 - 9.3. Overload protection and limits
 - 9.4. Power control
 - 9.5. Electrical connectors (types, pinouts, locations, mating and demating)
 - 9.6. Cable schematics
10. Electromagnetic Compatibility (EMC)
 - 10.1. EMC Classifications
 - 10.2. Host system produced interference environment
 - 10.3. Instrument produced interference environment
 - 10.4. Bonding and grounding
 - 10.5. Power and signal circuits isolation
11. Command and Data Handling (C&DH)
 - 11.1. Communications Technology (RS-422, Ethernet, Analog, Discrete, video, laptop, etc.)
 - 11.2. Signal Characteristics
 - 11.3. Response / Telemetry Format
 - 11.4. Request/Command Format
 - 11.5. Processing Requirements
 - 11.6. Connector/Pin Interface
 - 11.7. Data Acquisition, Storage and Management
 - 11.8. Synchronization
 - 11.9. Application Programming Interfaces
12. Environmental Interfaces

Any environmental factors not addressed elsewhere in the ICD (e.g. radiation, atmosphere, illumination, etc.)
13. Materials and Processes Interfaces

- 14. Human Factors Interfaces
- 15. Propulsion Interfaces
- 16. Pyrotechnic Interfaces
- 17. Fire Prevention
- 18. Ground Operations
 - 18.1. Facilities
 - 18.2. Instrument Handling
 - 18.3. Ground Support Equipment (GSE)
 - 18.4. Communications Requirements
 - 18.5. Power Requirements
 - 18.6. Special Equipment
 - 18.7. Storage

C FUTURE PHASES

The launch of the DDVS to the ISS is excluded from the scope of Work. The CSA is responsible for the launch and associated coordination activities.

For planning purposes, the following table provides a preliminary summary of expected reviews and meetings throughout future phases of the project:

TABLE C-1 – PROJECT MEETINGS AND REVIEWS

Meetings/Reviews	Lead	Date	Location	Participants
Preliminary Design Review	Contractor	As per proposed schedule	Contractor	CSA, Contractor, NASA (TBD)
Critical Design Review	Contractor	As per proposed schedule	Contractor	CSA, Contractor, NASA (TBD)
Test Readiness Reviews	Contractor	As per proposed schedule	Teleconference	CSA, Contractor
NASA Safety Review Panel	NASA	As per proposed schedule and NASA process	NASA	CSA, NASA, Contractor
NASA SDIL Tests	Contractor	As per proposed schedule and NASA process	NASA	CSA, NASA, Contractor
Acceptance Review	Contractor	As per proposed schedule	Contractor	CSA, NASA, Contractor
Pre-Ship Review	Contractor	As per proposed schedule	Contractor	CSA, NASA, Contractor
Bench Review/ Handover to NASA	NASA	As per proposed schedule and NASA process	NASA	CSA, NASA, Contractor
Commissioning Review	Contractor	As per proposed schedule	Contractor	CSA, Contractor, Sub-contractors

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D ACRONYMS

BIP	Background Intellectual Property
CA	Contract Award
CAD	Computer-Aided Design
CDR	Conceptual Design Review
CDRL	Contract Data Requirements List
CSA	Canadian Space Agency
CTE	Critical Technology Element
DDVS	Dextre Deployable Vision System
DID	Data Item Description
FIP	Foreground Intellectual Property
ICD	Interface Control Drawing Document
ISS	International Space Station
KA	Keep-Alive
KOM	Kick Off Meeting
MLI	Multi-layer insulation
MSS	Mobile Servicing System
MT	Mobile Transporter
NASA	National Aeronautics and Space Administration
PBS	Product Breakdown Structure
PDF	Portable Document Format
PMP	Project Management Plan
PQSR	Preliminary Qualification Status Review
PWGSC	Public Works and Government Services Canada
RFP	Request for Proposals
ROM	Rough Order of Magnitude
SE	Systems Engineering
SRD	System Requirements Document
SRR	System Requirement Review
TA	Technical Authority
TRL	Technology Readiness Level
TRM	Technology Roadmap
TRRA	Technology Readiness and Risk Assessment
V&V	Verification and Validation
WBS	Work Breakdown Structure
WPD	Work Package Description

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ANNEX "B"

**BASIS OF PAYMENT AND
SCHEDULE OF MILESTONES**

1. **Bidders must provide a firm price for the overall project:**

Phase A

Total Firm Price CAN \$.

(Taxes extra, if applicable)

_____ \$

2. **Milestones: The schedule of milestones for which payments will be made in accordance with the Contract is as follows:**

No	Milestone	Deliverables	% of Total Price	Date (months after contract award)
1.	Kickoff	As per Appendix A in the SOW	10	1 week
2.	Preliminary Qualification Status Review (PQSR)	As per Appendix A in the SOW	20	4 months
3.	Conceptual Design Review (CDR)	As per Appendix A in the SOW	20	5 months
4.	System Requirements Review (SRR)	As per Appendix A in the SOW	50	7 months

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Annex C

DISCLOSURE CERTIFICATION

In accordance with Article 14 (Disclosure Certification) of the contract, you must provide the Contracting Authority and the Project Authority, a disclosure as indicated under Article 28 of General Conditions 2040 (2015-07-03) General Conditions Research and Development.

Please Check the appropriate box and return this Annex "C" with your last claim for progress payment.

_____ We hereby certify that all disclosures were submitted.

_____ We hereby certify that there were no disclosure to submit.

Signature: _____

Date: _____

ATTACHMENT 1 TO PART 3 TECHNICAL AND MANAGERIAL BID PREPARATION INSTRUCTIONS

1.1 TECHNICAL AND MANAGERIAL BID

The details provided in this Attachment complement the information introduced in Part 3 - Bid Preparation Instructions.

The Bidder should present the information about the Technical and Managerial Bid in the following order:

1. Title / Project Identification Page (see 1.2);
2. Table of Contents (see 1.3);
3. Technical and Managerial Section (see 1.4);
4. Bid Appendices (see 1.5).

The structure of the Technical and Managerial Bid and its subsections are described below. Some of the subsection headings include identifiers. These identifiers represent an evaluation criterion (see Attachment 1 to Part 4) that is applicable to that specific section/subsection for each bid submitted by a Bidder.

1.2 Title/Project Identification Page

The first page of the bid submitted should state the following information:

- a) The Request for Proposal file number;
- b) The company's name and address;
- c) The title of the proposed Work (the use of acronyms in the title is discouraged, unless they are described).

1.3 Table of Contents

The table of contents should be formatted such that its headings are linked to their respective location in the bid for ease of reference when using the bid's Soft copy version.

1.4 Technical and Managerial Section

The Technical and Managerial Section should describe the technical and managerial aspects of the project as outlined in the following subsections.

1.4.1 Mandatory Evaluation Criteria

The Bidder must have a subsection in its bid for the mandatory evaluation criteria detailed in Attachment 1 to Part 4. The subsection must contain sufficient details to demonstrate that the Bidder meets the mandatory evaluation criteria provided in Attachment 1 to Part 4.

1.4.2 Point-Rated Criteria

The Bidder must have a subsection in its bid for each rated evaluation criterion detailed in Attachment 1 to Part 4. The subsection must contain sufficient details to demonstrate that the Bidder meets the Point-rated evaluation criteria provided in Attachment 1 to Part 4.

1.5 Bid Appendices

1.5.1 Appendices Required with the Bid

The following items should be addressed in individual appendices as part of the bid:

- a) List of Acronyms: All the acronyms used in Section I: Technical and managerial Bid, should be explained;
- b) Resumes: The bid should include resumes of the proposed resources and these should be appended to Section I: Technical and Managerial Bid;
- c) List of Contacts: The list of contacts should be appended to Section I: Technical and Managerial Bid, in a format suitable for distribution and should include all the Bidder's points-of-contact involved in the bid development and/or during the Contract.

The following example format should be used:

Table 1.6: Bidder's List of Contacts

Role	Name	Telephone	Fax	E-Mail
Project Manager				
Project Engineers				
Contractor's Representative				
Claims (Invoicing) Officer				
Communications (for press release)				
Other				

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**ATTACHMENT 1 TO PART 4
Evaluation Criteria**

Evaluation Criteria Summary

Item	Evaluation Criteria Title	Mandatory Or Point-Rated
M1	Corporate Experience with Space Projects	M
P1	Team Expertise and Experience	P 10 pts
P2	Understanding of the Mission Requirements	P 10 pts
P3	Understanding of PA Requirements	P 10 pts
P4	Technology Readiness and Risk Assessment and Roadmap	P 10 pts
P5	Work Plan and Technical Methodology	P 10 pts
	Total	/50 points
	Minimum Score per criterion	5 pts
	Total Minimum Score	32.5 points/50 points

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1. Mandatory criteria

This criterion is deemed mandatory by CSA as the minimum necessary competence and capability for undertaking the work. Mandatory requirements are evaluated on a pass or fail basis and they will be evaluated very strictly as to compliancy. Therefore, no rating is associated with them. Proposals not meeting the mandatory criteria will be deemed non-responsive.

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; or
2. The Bidder's affiliates; or
3. The Bidder's subcontractors.

The experience of the Bidder's suppliers will not be considered.

M1. Corporate Experience with Space Projects (Management Criteria)

- 1) The Bidder must demonstrate that they have been active in business related to the following technologies being procured:
 - a. 3D Sensors (LiDAR)
 - b. Cameras (including optics) for Space – both visible and infrared
- 2) The Bidder must demonstrate experience in design, manufacture and test of systems and software rated for operations in a human space flight program (examples include Space Shuttle, International Space Station programs).

This criterion assesses the Bidder's experience and expertise in similar projects and how the Bidder has been active in the business related to the technology being procured.

For criteria 1), the Bidder must provide a description of at least one or more previous or current projects along with justification to demonstrate that the projects are similar or related to the two technologies being procured.

For criteria 2), the Bidder must provide a description of at least one or more previous or current projects along with justification to demonstrate that the projects are similar or related to its overall ability to deliver similar systems rated for operations in a human space flight program (examples include Space Shuttle, International Space Station programs).

Bidders are required to provide a description of at least 2 (two) projects. In the event that the same project is used for both criteria, the Bidder must provide a description of at least one other project that meets either criteria 1) or 2).

The referenced projects must have design, manufacturing and testing phases completed.

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2. Point-Rated Criteria

Proposals must obtain the required overall minimum points and obtain the minimum points required for each rated criterion to be assessed as responsive under the point rated technical criteria section; proposals not meeting the minimum required points 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.

For the following criteria, when a detailed substantiation is required, Bidders are requested to 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.

P1. Team Experience with Space Projects (Management Criteria)

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). 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 Bidder must identify the Project Manager and outline his/her qualifications. The Bidder's proposed Project Manager must have been a Project Leader on a minimum of three (3) projects OR have a minimum of 5 years (60 months) of demonstrated Project Management experience. The demonstrated experience must be in design, manufacture and test of systems and software rated for operations in a human space flight program (examples include Space Shuttle, International Space Station programs).

The Bidder must identify the key members of the projects' technical and management teams and state their specific qualifications and experience for the Work involved. Detailed resumes of key members must be provided in an Appendix. Names of back up personnel for key positions must also be included.

The Bidder should include an organizational chart that illustrates the structure of the proposed project team, as well as their level of effort for the Work under the Contract, as a percentage.

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

- a) 3D Sensors (LiDAR)
- b) Cameras (including optics) for Space – both visible and infrared spectrum
- c) Previous or current projects delivering similar space-qualified systems

The Bidder should address the following 6 (six) asset elements:

- (1) At least one Key member has a minimum of three (3) projects OR a minimum of 5 years (60 months) of experience in 3D Sensors (LiDAR)
- (2) At least one Key member has a minimum of three (3) projects OR a minimum of 5 years (60 months) of experience in Cameras (including optics) for Space – visible spectrum

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- (3) At least one Key member has a minimum of three (3) projects OR a minimum of 5 years (60 months) of experience in Cameras (including optics) for Space – infrared spectrum
- (4) At least one Key member has a minimum of three (3) projects OR a minimum of 5 years (60 months) of experience in delivering space-qualified systems
- (5) And organizational chart is included and represents all team resources
- (6) The level of effort for Phase A of each member is included, as a percentage

The Bidder must also include the following 3 (three) required elements in its bid:

- (1) Project Manager qualification and experience
- (2) Key members and subcontractor qualification and experience (if subcontractors are proposed)
- (3) Backup personnel qualification and experience.

In the circumstances where sub-contractor resources are being proposed, the same requirements applicable to the prime contractor are applicable to the sub contractor's team(s).

Level A (10 pts)

The Bidder meets all three (3) required elements.
-AND-
The Bidder meets 6 (six) asset elements.

Level B (7.5 pts)

The Bidder meets the requirements in all three (3) of the required elements.
-AND-
The Bidder meets 5 (five) asset elements.

Level C (5.0 pts) (minimum)

The Bidder meets the requirements in all three (3) of the required elements.
-AND-
The Bidder meets 4 (four) asset elements.

Level D (0 pts)

The Bidder does not meet the minimum requirements of Level C.

P2. Understanding Of The Mission Requirements (Technical Criteria)

The Bidder must propose a preliminary concept that demonstrates an understanding of the mission requirements, and the proposed solution must address all mandatory mission requirements provided in the Mission Requirements Document, CSA-DDVS-RD-0002.

The Bidder must provide requirement compliance substantiation for each group of requirements as listed in Table 2 hereunder. Each group of requirements corresponds to specific sections of the Mission Requirements Document, CSA-DDVS-RD-0002. Although these groups include multiple requirements, the Bidder is not requested to address each requirement individually but must address each group as a whole. Table 2 should be used as a template.

“Substantiation” must be in the form of 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.

Table 2: Mission Requirements Compliance Substantiation

DDVS Mission Requirements (CSA-DDVS-RD-0002)			
Group	Document section	Requirements	Compliance Substantiation
1	3.1	Functional Requirements	
2	3.2	Performance Requirements	
3	3.3	Operational Requirements	
4	3.4	Interface Requirements	
5	3.5	Electrical Requirements	
6	3.6	Physical Requirements	
7	3.7	Environment Requirements	
8	3.8	Software and User Interface Requirements	

For P2 criterion, when exceeds expectations or meet expectations is required, the Bidders will be evaluated based on the following definitions:

*Definition	Definition Description
Exceeds Expectations	Very competent, consistent, qualified, effective, strong, meticulous, well supported. Has a very good mastery of the topic. All of the main and secondary points are dealt with very well using a very logical approach.

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*Definition	Definition Description
Meets Expectations	A few small shortcomings that have an impact to some degree but not in an area of great importance; sufficient; competent; appropriate; effective; well supported; correct; satisfactory; suitable. Has a good mastery of the topic. Most of the main and secondary points are dealt with well using a logical approach.

Level A (10 pts)

The proposed preliminary concept exceeds expectations* in all 8 (eight) categories AND compliance is fully substantiated for all 8 (eight) categories;

Level B (7.5 pts)

The proposed preliminary concept meets expectations* in 7 (seven) categories AND compliance is fully substantiated for all 7 (seven) categories;

Level C (5.0 pts) (minimum)

The proposed preliminary concept meets expectations* in 5 (five) categories AND compliance is fully substantiated for all 5 (five) categories;

Level D (0 pts)

The Bidder does not meet the minimum requirements of Level C.

P3. Understanding Of The Product Assurance Requirements (Technical Criteria)

The Bidder must demonstrate an understanding of the product assurance requirements, and their intent to addresses all product assurance requirements provided in the Product Assurance Requirements Document, CSA-DDVS-RD-0003.

The Bidder must provide requirement compliance methodology for each group of requirements as listed in Table 3 hereunder. Each group of requirements corresponds to specific sections of the Product Assurance Requirements Document, CSA-DDVS-RD-0003. Although these groups include multiple requirements, the Bidder is not requested to address each requirement individually but must address each group as a whole. Table 3 should be used as a template.

“Methodology” must be in the form of a process, a program, a research strategy, a set of methods, best practices, qualitative or quantitative techniques, or other approaches that will be employed to meet the requirements. Cross-references to appropriate sections of the proposal should be provided when applicable.

Table 3: Product Assurance Requirements Compliance Substantiation

DDVS Product Assurance Requirements (CSA-DDVS-RD-0003)			
Group	Document section	Requirements	Compliance Methodology
1	3	Product assurance Program	
2	4	Qualification Program	

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DDVS Product Assurance Requirements (CSA-DDVS-RD-0003)			
Group	Document section	Requirements	Compliance Methodology
3	5	EEE Parts Program	
4	6	Reliability	
5	7	Mechanical Parts, Materials and Processes Program	
6	8	Quality Assurance Program	
7	9	Software Product Assurance Program	
8	10	FPGA Development	
9	11	Safety Program	

For P3 criterion, when exceeds expectations or meet expectations is required, the Bidders will be evaluated based on the following definitions:

*Definition	Definition Description
Exceeds Expectations	Very competent, consistent, qualified, effective, strong, meticulous, well supported. Has a very good mastery of the topic. All of the main and secondary points are dealt with very well using a very logical approach.
Meets Expectations	A few small shortcomings that have an impact to some degree but not in an area of great importance; sufficient; competent; appropriate; effective; well supported; correct; satisfactory; suitable. Has a good mastery of the topic. Most of the main and secondary points are dealt with well using a logical approach.

Level A (10 pts)

The proposal exceeds expectations* in all 9 (nine) categories AND compliance methodology is detailed for all 9 (nine) categories;

Level B (7.5 pts)

The proposal meets expectations* in 8 (eight) categories AND compliance methodology is detailed for all 8 (eight) categories;

Level C (5.0 pts) (minimum)

The proposal meets expectations* in 6 (six) categories AND compliance methodology is detailed for all 6 (six) categories;

Level D (0 pts)

The Bidder does not meet the minimum requirements of Level C.

P4. Technology Readiness and Risk Assessment and Roadmap

The Bidder must elaborate its understanding of the related technology by providing an assessment of the technical risks involved with the proposed concept. The proposal should as well identify the major assumptions upon which the project is based.

The TRRA is used to assess project status and technical risks, and to guide definition of risk reduction work in the current and following phases. This assessment must be performed using the CSA Technology Readiness and Risk Assessment Guidelines (CSA-ST-GDL-0001) and the Technology Readiness Levels (TRL) Handbook for Space Application (ESTEC, TEC-SHS/5574/MG/ap). The following worksheets are provided as a guideline:

- Critical Technologies Elements Identification Criteria Worksheet (CSA-ST-FORM-0003),
- Technology Readiness and Risks Assessment Worksheet (CSA-ST-FORM-0001),
- TRRA Data Rollup Tool (CSA-ST-RPT-0002).

The Bidder must provide a Technology Development Plan, also known as Technology Roadmap (CSA-ST-RPT-0003). It must include 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 delivered in Contractor Format, using CDRL 14 as a guideline. The results of the TRRA may be delivered in Contractor Format, using the Stand Alone Report (CDRL 15) as a guideline.

Finally, the Bidder must propose comprehensive Phase A activities resulting from the Technology Development Plan, as well as related decision points, and if applicable, explain why some activities can be delayed to future phases. The risk mitigation development activities must be prioritized, and the Bidder must provide a plan of the maximum amount of development work that they will perform during Phase A within the schedule and budget limitations provided in the RFP.

The activity planning for Phase A must be provided, as a minimum, in the form of Work Breakdown Structure (WBS) and Work Package Descriptions (WPD, CDRL 2) and a Phase A Schedule (CDRL 3). All activities must be cross-referenced to the Technology Development Plan such that the approach and methodology is complete and comprehensive.

To be compliant, the Bidder must address the following 4 (four) required elements:

- (1) List of CTE's (CSA-ST-FORM-0003 or Contractor format)
- (2) TRRA Report (CDRL 14 and 15 or Contractor format)
- (3) Work Package Descriptions (CDRL 2)
- (4) Phase A Schedule (CDRL 3)

For P4 criterion, when exceeds expectations, meet expectations or meets some expectations is required, the Bidders will be evaluated based on the following definitions:

*Definition	Definition Description
Exceeds Expectations	Very competent, consistent, qualified, effective, strong, meticulous, well supported. Has a very good mastery of the topic. All of the main and secondary points are dealt with very well using a very logical approach.
Meets Expectations	A few small shortcomings that have an impact to some degree but not in an area of great importance; sufficient; competent; appropriate; effective; well supported; correct; satisfactory; suitable. Has a good mastery of the topic. Most of the main and secondary points are dealt with well using a logical approach.

*Definition	Definition Description
Meets Some Expectations	Shortcomings in at least one major area, or many. The shortcomings may have an impact (even if limited) on some performance aspects. Sometimes makes mistakes. Some mastery of the topic, but insufficient to deliver the service at the expected level (of quality, proficiency, etc.). Addresses some major points and omits some secondary points (misses some elements that are key to the delivery of service).

Level A (10 pts)

- The Bidder addressed all 4 (four) required elements.
- AND-
- The proposal exceeds expectations* in presenting the technology maturity, associated risks, and required developments to meet mission needs with the proposed solution.
- AND-
- For the given solution, the CTE's identified meet expectations* of the essential development needs.
- AND-
- The proposed risk mitigation activities for Phase A are fully correlated to the TRRA findings, work activities are well defined, well prioritized, decision points are clearly stated, and a clear methodology for the development plan is presented.

Level B (7.5 pts)

- The Bidder addressed all 4 (four) required elements.
- AND-
- The proposal meets expectations* in presenting the technology maturity, associated risks, and required developments to meet mission needs with the proposed solution.
- AND-
- For the given solution, the CTE's identified meet expectations* of the essential development needs.
- AND-
- The proposed risk mitigation activities for Phase A are fully correlated to the TRRA findings, work activities are defined, somewhat prioritized, decision points are stated, and a methodology for the development plan is presented.

Level C (5 pts) (minimum required)

- The Bidder addressed all 4 (four) required elements.
- AND-
- The proposal meets some expectations* in presenting the technology maturity, associated risks, and required developments to meet mission needs with the proposed solution.

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-AND-

- For the given solution, the CTE's identified meet some expectations* of the development needs, although gaps are present.

-AND-

- The proposed risk mitigation activities for Phase A are somewhat correlated to the TRRA findings, work activities are defined, somewhat prioritized, decision points are stated, and a methodology for the development plan is presented.

Level D (0 pts)

The Bidder does not meet the minimum requirements of Level C.

P5. Work Plan and Technical Methodology

The purpose of the Work Plan is to ensure that Work is performed in the most effective manner. The Work Plan should be based on recognized management tools most applicable to the proposed project, such as a scope planning (WBS and WPD), schedule development charts (e.g. Gantt chart). Equivalent company-developed, project-tailored tools/charts are also acceptable as long as the information provided is complete and comprehensive.

This criterion assesses the suggested technical methodology and its correlation with the work plan as presented in the proposal. It also evaluates the effectiveness of the described methodology in resolving the technical challenges, in attaining the stated technical objectives of the work, in the approach for engineering development, and in meeting mission and product assurance requirements.

To be compliant, the Bidder must provide:

- (1) An overview of the technical methodology that it proposes to use. The methodology proposed must 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".
- (2) The methodology and the Bidder's work plan must be consistent with the findings of the Technology Readiness & Risk Assessment and the corresponding Technology Development Plan.
- (3) The Bidder must also indicate which software development environment and which methodology is already in place (e.g. use of CASE tools, standards, quality assurance, etc.)
- (4) Work Breakdown Structure and Work Package Descriptions for all Phase A activities
- (5) Schedule development charts (e.g. Gantt chart, etc.) for all Phase A activities that meet the SOW Milestones.

Level A (10 pts)

Bidders addressed all 5 (five) elements mentioned above and detailed substantiation is provided for all 5 (five) of the above mentioned elements.

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Level B (7.5 pts)

Bidders addressed all 5 (five) elements mentioned above and detailed substantiation is provided for at least 3 (three) of the above mentioned elements.

Level C (5 pts) (minimum required)

Bidders addressed all 5 (five) elements mentioned above, but lacks detailed substantiation for at least 3 (three) of the above mentioned elements.

Level D (0 pts)

The Bidder does not meet the minimum requirements of Level C.

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**ATTACHMENT 1 TO PART 5
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 employees (combined work force includes: permanent full-time, permanent part-time and temporary employees [temporary employees only includes those who have worked 12 weeks or more during a calendar year and who are not full-time students]).
- 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)