Public Works and Government Services Canada

Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Travaux publics et Services gouvernementaux Canada
Place Bonaventure, portail Sud-Est
800, rue de La Gauchetière Ouest
7 ième étage
Montréal
Québec
H5A 1L6
FAX pour soumissions: (514) 496-3822

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

Proposal To: Public Works and Government Services Canada

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

Proposition aux: Travaux Publics et Services Gouvernementaux Canada

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

Comments - Commentaires

Title - Sujet
SPICA FTS Ph.0-RFP

Solicitation No. - N° de l'invitation
9F052-130304/A

Date
2013-12-17

Client Reference No. - N° de référence du client
9F052-13-0304

GETS Reference No. - N° de référence de SEAG
PW-$MTB-770-12534

File No. - N° de dossier
MTB-3-36133 (770)

CCC No./N° CCC - FMS No./N° VME

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM
on - le 2014-01-13

Time Zone
Fuseau horaire
Heure Avancée de l'Est
HAE

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

Address Enquiries to: - Adresser toutes questions à:
Champoux, Annick

Buyer Id - Id de l'acheteur
mtb770

Telephone No. - N° de téléphone
(514) 496-3428 ( )

FAX No. - N° de FAX
(514) 496-3822

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:
AGENCE SPATIALE CANADIENNE
6767 ROUTE DE L AEROPORT
Space Exploration
ST HUBERT
Québec
J3Y8Y9
Canada

Instructions: See Herein

Instructions: Voir aux présentes

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

Delivery Required - Livraison exigée
.

Delivery Offered - Livraison proposée

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

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

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

Signature **Date**

Issuing Office - Bureau de distribution
Travaux publics et Services gouvernementaux Canada
Place Bonaventure, portail Sud-Est
800, rue de La Gauchetière Ouest
7 ième étage
Montréal
Québec
H5A 1L6

Canada

TABLE OF CONTENTS

PART 7 - RESULTING CONTRACT CLAUSES

List of Annexes:

PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation document 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 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.

And the following Annexes:
Annex A: Statement of Work and Requirement
Annex B: Basis of Payment: Schedule of Milestones
Annex C Disclosure certification
Annex D Contract plan and report form
Annex E Technical bid and criteria

1.2 Summary

Project title

Description
Public Works and Government Services Canada (PWGSC) on behalf of Canadian Space Agency (CSA) located in St-Hubert, (Quebec), is seeking bids to provide CSA's Phase 0 Concept Study to identify options, feasibility, cost, schedule, and risks for Canadian involvement in the SPICA-SAFARI project. The concept study will provide vital information and considerations for CSA to make an informed decision on whether to proceed with any further investment in SPICA.

Based on Canada's success with both the HIFI and SPIRE instruments on the Herschel Space Observatory, the SPICA Consortium, led by JAXA & ESA, have offered Canada the opportunity to provide space qualified hardware for the SAFARI instrument on SPICA in the form of the Fourier Transform Spectrometer (FTS) Mechanism, which Canadian industry has the capability to build.

Period of Contract
From date of Contract award to April 30, 2015.

Maximum funding
The maximum funding available, Goods and Services Tax (GST) and Quebec Sales Tax (QST) extra, as appropriate, for the contract resulting from the bid solicitation is $ 250 000.00 (taxes not included). Bids valued in excess of this amount will be considered non-responsive, as per PART 4- Evaluation Procedures and Selection Process, section 4.3 Financial Evaluation. This disclosure does not commit Canada to pay the maximum funding available.

Security Requirements
There are no security requirements applying to this project.

Code of Conduct for Procurement
The Code of Conduct for Procurement applies to this requirement.

Canadian Content
This requirement is limited to Canadian goods and/or services.

Trade agreements
This requirement is not subject to the trade agreements.

1.3 Debriefings

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

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

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

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

The 2003 (2013-06-01) 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
A list of subcontractors is needed for regional distribution report.

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 or by electronic mail 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 with FPS, bidders must provide the information required below before contract award.

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

a. an individual;

b. an individual who has incorporated;
c. a partnership made of former public servants; or
d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

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

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

Former Public Servant in Receipt of a Pension

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

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:
a. name of former public servant;
b. date of termination of employment or retirement from the Public Service.

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

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes ( ) No ( )**

If so, the Bidder must provide the following information:

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

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is $5,000, including Applicable Taxes.

2.5 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 questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

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 force in 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 Maximum Funding

The maximum funding available, Goods and Services Tax (GST) and Quebec Sales Tax (QST) extra, as appropriate, for the contract resulting from the bid solicitation is $ *250 000.00 (taxes excluded).* Bids valued in excess of this amount will be considered non-responsive, as per PART 4- Evaluation Procedures and Selection Process, section 4.3 Financial Evaluation. This disclosure does not commit Canada to pay the maximum funding available.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that bidders follow the format instructions described below in the preparation of each bid:

Each bid must contain the following sections:

Section I: Technical and Managerial Bid as well as the Executive Summary: (1 hard copy and 2 soft copies on USB key)

Section II: Financial Bid (1 hard copy and 1 soft copy on USB key)

Section III: Certifications (1 hard copy)

For the hard copies, each section must be bound separately;

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;

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, WordPerfect, PDF and HTML;

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, WordPerfect, PDF and HTML;

The soft copy of Section II must be submitted on a separate USB key than the soft copy submitted for Section I;

Prices must appear in Section II (financial bid) only. No prices must be indicated in any other section of the bid;

The total number of pages for Section I should not exceed 60 pages (8.5 X 11 inches) (216 mm X 279 mm) paper excluding bid appendices;

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

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

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

3.2 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 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 Annex E Technical bid and criteria.

3.3 Section II: Financial Bid

A firm lot price all inclusive for the work, not exceeding the Maximum funding as indicated in part 2, section 2.7 *Maximum Funding*. Prices must be in Canadian dollars. Goods and Services Tax (GST) and Quebec Sales Tax (QST) must be shown separately, as applicable.

Bidders must present their bid in conformity with Annex B, Basis of payment and with the financial evaluation in section 4.3 part 4 Evaluation procedures and basis of selection.

3.3.1 Bidders must submit their financial bid in accordance with Annex B, Basis of payment. the following:

3.3.2 Bidder must provide a price breakdown as follows:

(a) Labour: For each individual and (or) labour category to be assigned to the Work, Bidder must indicate: i) the hourly rate, inclusive of overhead and profit; and ii) the estimated number of hours corresponding to working hours.

(b) Equipment: Bidder must specify each item required to purchase and complete the Work and provide the pricing basis of each one, Canadian customs duty and excise taxes included, as applicable. These items will be deliverable to Canada upon completion of the contract.

(c) Materials and Supplies: Bidder must identify each category of materials and supplies required to purchase and provide the pricing basis of each one in order to complete the Work.

(d) Travel and Living Expenses: Bidder must Indicate the number of trips and the number of days for each trip, the cost, destination and purpose of each journey, together with the basis of these costs which must not exceed the limits of the National Joint Council (NJC) 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 http://www.njc-cnm.gc.ca/directive/travel-voyage/index-eng.php, and the other provisions of the Directive referring to "travellers", rather than those referring to "employees", are applicable.

(e) Subcontracts: Bidder must identify all of the proposed subcontractor and provide in the Financial bid for each one a price breakdown as contained in paragraph 3.3.4 of Part 3 of the bid solicitation.

(f) Other Direct Charges if applicable: Bidder must identify all other direct charges anticipated, such as long distance communications and rentals, and provide the pricing basis for each.

(g) GST and QST: Bidder must identify any applicable GST and QST separately.

3.4 Exchange Rate Fluctuation

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

3.5 Section III: Certifications

In Section III, Bidders must include the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

(a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical, 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 Point Rated Technical and Management Criteria

Point rated Technical and Management Evaluation Criteria are described in Annex E –Point Rated Technical and Management criteria. A score of zero will be given to any criteria not addressed.

4.3 Financial Evaluation

4.3.1 Mandatory Financial Criteria

Bids must meet the mandatory financial criteria in conformity with section 2.7 Maximum funding. Bidder must respect the maximum funding available for the contract resulting from the bid solicitation (Goods and Services Tax (GST) and Quebec Sales Tax (QST) extra, as appropriate).

Bids which fail to meet this mandatory financial criterion will be declared non-responsive. Bids valued 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, the Goods and Services Tax (GST) and Quebec Sales Tax (QST) excluded, FOB destination, Canadian customs duties and excise taxes included.

4.4 Basis of Selection

4.4.1 Basis of Selection - Highest Rated Within Budget

To be declared responsive, each bid must:

a) comply with all the requirements of the bid solicitation;

b) obtain the required minimum of fifteen (15) points on a scale of twenty (20) points for the Evaluation Criterion #1 "Relevance and Merit of the concept " as indicated in Table 4 of Annex E.

c) obtain the required minimum of seventy (70) points, on a scale of 100, for the overall Relevance, Technical and Management portion of the bid as indicated in Table 4 of Annex E.

4.4.2. Bids not meeting (a) or (b) or (c) will be declared non-responsive.

4.4.3. The overall score will be obtained by adding the scores for each criteria (1 to 7) of table 4 of Annex E.

4.4.4. The responsive bid 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.

4.4.5. In the event that more than one responsive bid has the same rating, the bid which obtained the highest number of points for the point rated Technical evaluation criteria (article 3, 4 and 5) will be recommended for award of a contract.

PART 5 - CERTIFICATIONS

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

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default, if any certification made by the Bidder is found to be untrue whether 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 with this request will also render the bid non-responsive or will constitute a default under the Contract.

5.1. Mandatory Certifications Precedent to Contract Award

5.1.1 Code of Conduct and Certifications - Related documentation

By submitting a bid, the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Bid of Standard Instructions 2003. The related documentation therein required will assist Canada in confirming that the certifications are true.

5.2 Additional Certifications Precedent to Contract Award

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

5.2.1 Canadian Content Certification

This procurement is conditionally limited to Canadian goods and Canadian services.

Subject to the evaluation procedures contained in the bid solicitation, bidders acknowledge that only bids with a certification that the goods and services offered are Canadian goods and Canadian services, as defined in clause A3050T, may be considered.

Failure to provide this certification completed with the bid will result in the goods and services offered being treated as non-Canadian goods and non-Canadian services.

The Bidder certifies that:

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

For more information on how to determine the Canadian content for a mix of goods, a mix of services or a mix of goods and services, consult Annex 3.6.(9), Example 2, of the Supply Manual. (https://buyandsell.gc.ca/policy-and-guidelines/supply-manual/annex/3/6).

5.2.1.1 **Canadian Content Certification** (Definition)

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.

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.

PART 6 - FINANCIAL AND OTHER REQUIREMENTS

6.1 Financial Capability

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

PART 7 - RESULTING CONTRACT CLAUSES

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

7.1 Statement of Work

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

7.2. Standard Clauses and Conditions

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

7.2.1 General Conditions

2040 (2013-06-27), General Conditions - Research & Development, apply to and form part of the Contract.

7.3. Term of Contract

7.3.1 Period of Contract

From date of Contract to April 30, 2015..

The specific dates will be inserted at contract award.

7.4 Authorities

7.4.1 Contracting Authority

The Contracting Authority for the Contract is:

Annick Champoux
Supply specialist
Public Works and Government Services Canada
Quebec Region
7th Floor
Place Bonaventure, South-East Portal
800 de La Gauchetière Street West
Room 7300
Montreal, Quebec, H5A 1L6

Telephone: 514-496-3485
Facsimile: 514-496-3822
E-mail address: annick.champoux@tpsgc-pwgsc.gc.ca

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

7.4.2 Project Authority

The Project Authority for the Contract is:

To be deternined in the contract

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.

7.4.3 Contractor's Representative

To be deternined in the contract

The Contractor's Representative for the Contract is:

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

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

7.5 Proactive Disclosure of Contracts with Former Public Servants (*if applicable*)

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

7.6. Payment

7.6.1 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 of $ _____ *(will be inserted on contract award)* in accordance with Annex B basis of payment. Customs duties are included and applicable taxes are extra.

7.6.2 Limitation of Price

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

7.6.3 Method of Payment

7.6.3.1 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 (http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf) 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.

7.6.3.1.1 Schedule of Milestones

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

7.6.4 SACC Manual Clauses

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

7.7 Invoicing Instructions

7.7.1 Invoicing Instructions - Progress Claim - Firm Price

1. The Contractor must submit a claim for progress payment using form PWGSC-TPSGC 1111 (http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf).

   Each claim must show:

(a) all information required on form PWGSC-TPSGC 1111;
(b) all applicable information detailed under the section entitled “Invoice Submission” of the general conditions;
(c) the description and value of the milestone claimed as detailed in the Contract.

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

3. The Contractor must prepare and certify **one (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,

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.

7.8 Certifications

7.8.1 Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the entire contract period. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

7.8.2 SACC Manual Clauses

SACC Manual Clause A3060C (2008-05-12), Canadian Content Certification

7.9 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____ *(to be inserted at contract award).*

7.10 Priority of Documents

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

(a) the Articles of Agreement;
(b) the general conditions 2040 (2013-06-27), General Conditions - Research & Development;
(c) Annex A, Statement of Work;
(d) Annex B, Basis of Payment;
(e) AnnexC, Disclosure certification
(f) Annex D, Contract plan and report form
(g) the Contractor's bid dated _____ as clarified / amended (if applicable) on _____.

7.11 Foreign Nationals (Canadian Contractor)

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

7.12 Insurance

SACC Manual clause G1005C (2008-05-12), Insurance

ANNEX A

STATEMENT OF WORK (Work)

The Statement of Work appended to the bid solicitation package is to be inserted at this point and forms part of this document.

ANNEX B

BASIS OF PAYMENT

Schedule of milestone

A firm, all inclusive lot price for the Work, which must not exceed the maximum funding available for the contract resulting from the bid solicitation specified in Part 2.7 Maximum funding.

Prices must be in Canadian funds, Customs duties included, as applicable. The total amount Goods and Services Tax (GST) and Quebec Sales Tax (QST) must be shown separately, as applicable.

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

Milestone No.	Deliverable	Firm Amount *(to be inserted upon contract award)*	Delivery Date *(to be inserted upon contract award)*
1	Concept Review (CR)		
2	Preliminary Requirement review (PRR)		
3	End of Phase 0 (EOP)		
4	Final Technical Report		

Total Firm Price $_____
(GST/QST Extra, if applicable)

ANNEX C

DISCLOSURE CERTIFICATION

In accordance with Article 13 (Disclosure Certification) of the contract, you must provide the Contracting Authority and the Project Authority, a disclosure as indicated under under Article 28 of General Conditions 2040 (2013-06-27) General Conditions Research and Development.

Please Check the appropriate box and return this Annex “C” with your last claim for milestone payment.

_____ We hereby certify that all disclosures were submitted.

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

_____

Signature/Date

CSA-SAFARI FTS-SOW-0001

Canadian Space Agency

SPICA SAFARI FTS Mechanism

Phase 0 Statement of Work (SOW)

Revision 1.0

October 16, 2013

Canadian Space Agency
Agence Spatiale Canadienne

This Page Intentionally Left Blank

APPROVALS

This document must be approved by the Head, Exploration Strategic Planning. Any proposed changes to the baseline version of this document must be issued to the Technical Lead for evaluation and, if approved, incorporated into this document.

Prepared by:

James Doherty — Date

SAFARI FTS Technical Lead

Prepared by:

Jean Dupuis — Date

SAFARI FTS Mission Scientist

Reviewed by:

System Engineer — Date

Approved by:

Alain Ouellet — Date

Head, Exploration Strategic Planning

This Page Intentionally Left Blank

REVISION HISTORY

Rev.	Description	Initials	Date
0.8	Remove Animation	JPD	October 10, 2013
0.9	Final tidying up	JPD	October 10, 2013
1.0	DID-0000 amended – Rev 1 sent for translation	JPD	October 16, 2013
	Initial Release for RFP		

TABLE OF CONTENTS

PAGE

LIST OF FIGURES

FIGURE PAGE

LIST OF TABLES

TABLE PAGE

1 INTRODUCTION

1.1 SPICA OVERVIEW

The SPace Infrared telescope for Cosmology and Astrophysics (SPICA) is a far infrared space astronomy mission proposed by the Japanese Space Agency (JAXA) and supported by ESA under its Cosmic Vision program. It will provide powerful scientific capabilities to answer fundamental questions about the formation of planets and the emergence of life, and about the formation and evolution of galaxies. SPICA will fill a major wavelength gap between the two principal IR and sub-mm astronomical facilities: the James Webb Space Telescope (JWST) and the Atacama Large Millimeter/submillimeter Array (ALMA), while performing unique science unachievable from the ground.

SPICA will have a similar sized aperture to the Herschel space observatory, but the telescope will be cooled to liquid helium temperature, and the scientific instruments will observe over the wavelength range of 5-210 μm. With a deeply cooled (<6 K) large (3-m class) telescope, SPICA will achieve superior sensitivity and high spatial resolution (20 to 1000 times better than existing IR telescopes). Rather than carry a Helium reservoir, SPICA will be "cryo-free-cooled" by virtue of mechanical cooling using 3He JT (Joule-Thomson) cooler. As a result, SPICA's low thermal background will achieve sensitivities two orders of magnitude better than Herschel.

SPICA will be equipped with a Focal Plane Instrument suite including:

- The SPICA FAR-IR Instrument (SAFARI) an imaging spectrometer (30-210 μm, spectral resolution of 10 to 10000)
- the SPICA Coronagraph Instrument (SCI) (4-28 μm, spectral resolution of 200)
- the Mid-IR Camera and Spectrometer (MCS) (5-38 μm, Medium (1100-3000) and High Resolution (20000-30000) modes) and
- the Focal-Plane Camera (FPC) for Guider/Science.(0.7-5.2 μm)

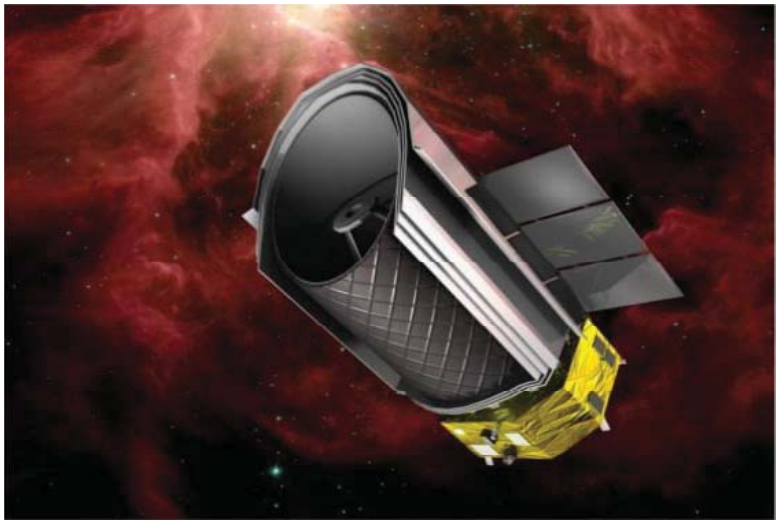

FIGURE 1-1 – ARTIST IMPRESSION OF SPICA SPACE TELESCOPE

1.2 SAFARI OVERVIEW

The SpicA FAR infrared Instrument (SAFARI) is the core far-infrared instrument on SPICA. To meet the science objectives of the mission, it will have to have high throughput and offer sensitive imaging spectrometry in the far-IR range continuously over a field of view of 2'x2'. The spectrometer design that best meets the science requirements uses the technique of spectroscopic interferometry and is based on the Mach-Zehnder interferometer design. This type of Fourier Transform Spectrometer (FTS) was used successfully in the Herschel SPIRE instrument.

Instead of recording a dispersed spectrum, this spectrometer produces an interferogram corresponding to the Fourier transform of the incoming spectrum. Several interferograms can be recorded simultaneously by placing an array of detectors in the image plane. A spectral image, or data cube, can be obtained for the whole field of view by computing the inverse Fourier Transforms of the ensemble of interferograms. The top level specifications for SAFARI are listed in Appendix A.

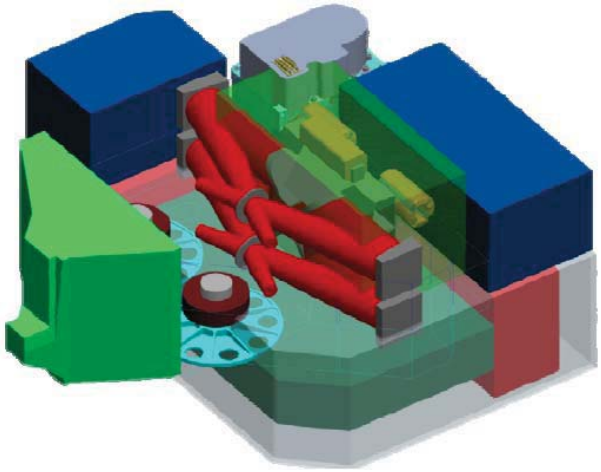

FIGURE 1-2 – INSTRUMENT LAYOUT OF SPICA-SAFARI

1.3 OPPORTUNITY FOR CANADA

The SAFARI Consortium is seeking international partners-* with particular areas of technical expertise. Recognizing Canadian capabilities in the area of Far-IR and sub-mm astronomy (e.g. Herschel, ODIN, JCMT, ALMA), especially from collaboration on the SPIRE FTS, including a reputable industrial capacity to manufacture FTS, the SAFARI Consortium has invited Canada to provide the FTS Mechanism (FTSM). Canada has been involved with SPICA mission planning since its conception in October 2007. Following an RFP for Canadian participation in the ESA Cosmic Vision proposals (9F007-2007/COSMICVISION), the University of Lethbridge submitted a proposal entitled "Canadian Participation in the European Instrument (ESI) on the JAXA SPICA Mission". Since then, The University of Lethbridge has been under contract from

the CSA to carry out a SPICA SAFARI Assessment Study that will continue for the foreseeable future.

1.4 SPICA SAFARI CONSORTIUM PROGRESS

SPICA is scheduled for launch by 2022 on JAXA's HII-A launcher that will propel it into a large L2 halo orbit, 1.5 million km from Earth. The nominal mission lifetime is three years with a five year goal. From JAXA's viewpoint, the project is now in phase B1 (Risk Mitigation) with partners including: KASI, ASIAA, ESA/Europe, and NASA. Following successful passing of the SPICA System Requirement Review in summer 2010, the project has focused on critical areas and risk mitigation. Between May and July 2011 an extensive review of the mission was conducted by an independent technical feasibility study team at the Institute of Space and Astronautical Science (ISAS)/JAXA. In August 2011, the JAXA Space Science Steering Committee (SSSC) approved the SPICA mission proceeding to Phase B1 – Risk Mitigation activities. Approval of the ESA Science Programme Committee (SPC) will follow immediately after JAXA mission approval. SPICA is currently noted in the program as a possible mission of opportunity. The European contributions are the telescope by ESA and SAFARI by consortium. All partners except the Netherlands require SPC decision to fully commit.

1.5 SAFARI FTS SUBGROUP

The SAFARI Consortium has created a subgroup in the SAFARI system team dedicated to refining the specifications for the FTS subsystem based on the science requirements, instrument interface requirements, opto-mechanical and thermal requirements, and the test and verification needs, while confirming options for contributions to the FTS subsystem by some of the other consortium partners (e.g. magnetic bearings from CSL, Belgium). These activities are a pre-cursor for the work to be carried out under this contract. This information will be shared with the successful bidder to enable a thorough investigation of the details for the work that this subsystem entails.

1.6 PURPOSE & SCOPE OF PHASE 0 STUDY

The purpose of this Phase 0 Study is to review the FTS design, identify options, feasibility, cost, schedule, and risks for Canadian involvement in the SPICA-SAFARI FTS project. The study will provide vital information and considerations for CSA to make an informed decision on whether to proceed with any further investment in SPICA. Under contract from the CSA, the University of Lethbridge will work with the winning bidder to study the FTS concept.

The scope of this Statement of Work (SOW) includes a critical review of the Preliminary Design of the SAFARI instrument including technical support to ESA to integrate the FTS into the SAFARI instrument.

The Contractor must provide the facilities, personnel, equipment, materials and services required to conduct the work described in this SOW. During the course of the work, the Contractor must be responsible for project management, schedule and cost control, identification and management of risks, configuration, safety and mission assurance. The Contractor must deliver the documentation and services specified in Appendix C Deliverables.

The principal deliverable will be the Final Technical Report (DID-0013) to describe the details of the concept that is developed under this contract. The concept study will consider scientific,

technical, programmatic and budgetary elements of the mission; these elements are reflected in the template provided for the Final Report (DID-0013).

1.7 PROJECT SCHEDULE

Project duration will be up to twelve (12) months.

The project schedule prepared by the Bidder should provide a graphical representation of predicted tasks, milestones, dependencies, resource requirements, task duration, and deadlines. The project's master schedule should inter-relate all tasks on a common time scale. The project schedule should be detailed enough to show each Work Breakdown Structure (WBS) task to be performed, the name of the person responsible for completing the task, the start and end date of each task, the deliverables and the expected duration of the task.

1.8 DOCUMENT CONVENTIONS

A number of the sections in this document describe controlled requirements and specifications and therefore the following verbs are used in the specific sense indicated below:

- "Must" is used to indicate a mandatory requirement;
- "Should" indicates a preferred alternative but is not mandatory;
- "May" indicates an option;
- "Will" indicates a statement of intention or fact, as does the use of present indicative active verbs.

1.9 ACRONYMS AND ABBREVIATIONS

ACA	After Contract Award
AD	Applicable Document
AI	Action Item
AIL	Action Items Log
ALMA	Atacama Large Millimeter/submillimeter Array
BIP	Background Intellectual Property
C	Compliant
CAD	Computer-Aided Design
CADM	Configuration and Data Management
CAGE	Commercial and Government Entity
CASCA	Canadian Astronomical Society / Société Canadienne d'Astronomie
CCB	Configuration Control Board
CDRL	Contract Data Requirements List
CDR	Complete Design Review
CF	Contractor Format
CIDL	Configuration Items Data List
CIL	Critical Item List
CM	Configuration Management
CR	Concept Review
CRB	Configuration Review Board
CSA	Canadian Space Agency
CSL	Centre spatial de Liège, Belgium
CSEP	Canadian Space Exploration Plan
CTE	Critical Technology Elements
CWBS	Contractor Work Breakdown Structure
DDTC	Department Directorate of Defense Trade Controls
DFL	David Florida Laboratories
DID	Data Item Description
DM	Design Model
DML	Declared Material List
DPL	Declared Process List
DWG	Discipline Working Group
ECN	Engineering Change Notice
ECP	Engineering Change Proposal

EGSE	Electrical Ground Support Equipment
EIDP	End Item Data Package
EM	Engineering Model
EMC	Electro-Magnetic Compatibility
EMI	Electro-Magnetic Interference
FIRDWG	Far Infrared Discipline Working Group
FIP	Foreground Intellectual Property
FM	Flight Model
FPC	Focal-Plane Camera
FTS	Fourier Transform Spectrometer
FTSCU	Fourier Transform Spectrometer Control Unit
FTSM	Fourier Transform Spectrometer Mechanism
GFE	Government Furnished Equipment
GFF	Government Furnished Facilities
GSE	Ground Support Equipment
HPA	High Power Amplifier
HQP	Highly Qualified Personnel
HVPS	High-Voltage Power Supply
ICD	Interface Control Drawing
ICU	Instrument Control Unit
ISAS	Institute of Space and Astronautical Science (at JAXA)
ITAR	International Traffic in Arms Regulations
JAXA	Japan Aerospace Exploration Agency
JT	Joule-Thomson
JWST	James Webb Space Telescope
KoM	Kick-off Meeting
LRP	Long Range Plan
MCS	Mid-IR Camera and Spectrometer
MIP	Mandatory Inspection Point
MRB	Material Review Board
MTR	Mid-term Review
MUA	Material Usage Agreement
NC	Non-Conformance
NCRB	Non-Conformance Review Board
OGD	Other Government Departments
OPI	Office of Prime Interest

OPD	Optical Path Difference
PA	Product Assurance
PAIP	Product Assurance Implementation Plan
PAR	Product Assurance Requirement
PBS	Product Breakdown Structure
PDR	Preliminary Design Review
PMP	Project Management Plan
PWGSC	Public Works and Government Services Canada
QA	Quality Assurance
QM	Qualification Model
RD	Reference Document
RF	Radio Frequency
RFD	Request For Deviation
RFP	Request for Proposal
RFW	Request For Waiver
RID	Review Item Discrepancy
RR	Requirement Review
SAFARI	SpicA FAR infrared Instrument
S&MA	Safety & Mission Assurance
SCD	Source Control Drawing
SCI	SPICA Coronagraph Instrument
SI	System International
SOW	Statement of Work
SPA	Software Product Assurance
SPC	Science Programme Committee
SPICA	SPace Infrared telescope for Cosmology and Astrophysics
SSSC	Space Science Steering Committee
TA	Technical Authority
TNO	Toegepast Natuurwetenschappelijk Onderzoek (translation: Netherlands Organisation for Applied Scientific Research)
TPM	Technical Performance Measure
TRM	Technology Roadmap
TRRA	Technology Readiness and Risk Assessment
TVAC	Thermal-VACuum
WCA	Worst Case Analysis

2 DOCUMENTS

2.1 APPLICABLE DOCUMENTS (AD)

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

TABLE 2-1 – APPLICABLE DOCUMENTS

AD No.	Document Number	Document Title	Rev. No.	Date
AD-01	CSA-ST-GDL-0001	Technology Readiness Levels and Assessment Guidelines at ftp://ftp.asc-csa.gc.ca/users/TRP/pub/TRL-TRA/	A	October 2010
AD-02	SRON-SAFARI-SP-2013-003	SAFARI FTS Specification	Draft 0.33	02-09-2013
AD-03		SPICA SAFARI Product Assurance Requirements		
AD-04	ESTEC TEC-SHS/5574/MG/ap	Technology Readiness Levels Handbook for Space Applications ftp://ftp.asc-csa.gc.ca/users/TRP/pub/TRL-TRA/		March 2009
AD-05	CSA-ST-FORM-0001	Technology Readiness and Risk Assessment Worksheet: at ftp://ftp.asc-csa.gc.ca/users/TRP/pub/TRL-TRA/	E	July 9, 2013
AD-06	CSA-ST-RPT-0001	Technology Readiness and Risk Assessment Rollup: TRRA_Assessment_Tool.xlsm at ftp://ftp.asc-csa.gc.ca/users/TRP/pub/TRL-TRA/	E	July 9, 2013
AD-07		Roadmap Framework: ExCore Concept Study TechnologyRoadmappingWorkbook.xlsx at ftp://ftp.asc-csa.gc.ca/users/TRP/pub/TRM/		July 2012

Note: The issue and revision level shown in the table for each document is for reference, the latest agreed revision level of these documents is applicable.

2.2 REFERENCE DOCUMENTS (RD)

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

TABLE 2-2 – REFERENCE DOCUMENTS

RD No.	Document Number	Document Title	Rev. No.	Date
RD-01	SRON-SAFARI-RP-2012-001	SAFARI Instrument design description	1.0	
RD-02	OSA SAFARI FTS	A Large-Stroke Cryogenic Imaging FTS System for SPICA-Safari		
RD-03	SPIE 2012	The SAFARI Imaging Spectrometer for the SPICA space observatory		
RD-04	SPIE Paper	SPICA / SAFARI Fourier Transform Spectrometer Mechanism Evolutionary Design		
RD-05	ITAR, 22 CFR 120-130	International Traffic in Arms Regulations 2011, Regulation 22 C.F.R. Chapter 1, Subchapter M Parts 120-130		

3 SAFARI FTS BASELINE REQUIREMENTS

3.1 CONTEXT

The FTS specifications and requirements are described in document (AD-02) SRON-SAFARI-SP-2013-003 at Appendix A of this RFP. The hardware deliverable that has been identified as a potential contribution from Canada is the FTS subsystem includes the following three elements:

1. FTS mechanism (FTSM) – The cryogenic translation mechanism to modulate the Optical Path Difference (OPD) between the two arms of interferometer optics. Note that the optical elements (beam-splitter and beam-combiner) of the FTS would not be part of Canada's contribution.
2. FTS Control Unit (FTSCU) – Located in the SPICA warm Service Module and used to command and control the motion of the FTSM.
3. Cryogenic Harness – Canada is also expected to design the Cryogenic Harness that will interconnect the FTSCU to the FTSM.

The CSA is seeking a concept for the contribution of these three elements to meet the requirements and specifications. The bidder shall use the requirements available at the time of publication of this RFP. Updated requirements may be provided by SRON through the CSA as they become available. The bidder shall take into account all of the requirements in Section 6 of the SRON document applicable to the FTSM, FTSCU, and cryogenic harness to develop a concept for fabrication and testing of the DM, QM, and FM units in Canada as indicated in Sections 3.2 through 3.8 below.

3.2 FUNCTIONAL REQUIREMENTS

Refer to AD-02 section 6.1 of SRON-SAFARI-SP-2013-003.

3.3 PERFORMANCE REQUIREMENTS

Refer to AD-02 section 6.2 of SRON-SAFARI-SP-2013-003.

3.4 REDUNDANCY

Refer to AD-02 section 6.3 of SRON-SAFARI-SP-2013-003.

3.5 INTERFACES

Refer to AD-02 section 6.4 of SRON-SAFARI-SP-2013-003.

3.6 CLEANLINESS REQUIREMENTS

Refer to AD-02 section 6.5 of SRON-SAFARI-SP-2013-003.

3.7 DESIGN AND CONSTRUCTION REQUIREMENTS

Refer to AD-02 section 6.6 of SRON-SAFARI-SP-2013-003.

3.8 ENVIRONMENTAL REQUIREMENTS

Refer to AD-02 section 6.7 of SRON-SAFARI-SP-2013-003.

3.9 CONCEPT

The Concept is subdivided into the following elements:

1. Overall concept
2. Conceptual design
3. Interface definition
4. Feasibility
5. Preliminary requirements

3.9.1 Overall Concept

The Contractor must develop and describe the overall approach at system level with an emphasis on heritage with any critical design features. As much as possible, existing data from currently active programs should be used as a reference.

3.9.2 Conceptual Design

Given that the FTS design is well advanced, the major task is to cost out implementing the design as currently conceived. Therefore, using the conceptual design (CDRL 1311 / DID-0011) the Contractor must assess the functional description of the FTS to serve as a basis to identify the resources necessary for the system to accomplish its objectives throughout its lifecycle.

3.9.3 Interface Definition

SRON will define and describe the various interfaces of the proposed concept.

3.9.4 Feasibility

Based on the physical, operational, and environmental constraints, which are well advanced, the Contractor must present a feasibility study (CDRL 25) in Contractor Format (CF) to complete the design as provided, including any necessary assumptions.

3.9.5 Fabrication of SPICA SAFARI FTS

Using the advanced state of instrument development, the successful bidder will work with the SRON team, CSL (i.e. Belgian magnets manufacturer), and TNO to determine out how to build the FTS mechanism according to the proposed design and to prepare an accurate costing of the advanced design.

3.9.6 Preliminary Requirements

The SPICA Consortium has developed a list of baseline requirements (AD-02) for the Contractor to initiate its concept study, which are accessible from the ftp site designated at Appendix A.

3.10 PROJECT MANAGEMENT

3.10.1 Project Management

The Contractor must provide, either directly or through subcontracts, all facilities, personnel, equipment, materials, and services necessary to perform the work specified in this SOW.

The Contractor must establish and maintain a close management and technical interface with the University of Lethbridge and the CSA to coordinate project efforts and communicate with SRON in all technical issues and discussions.

3.10.2 Contract Work Breakdown Structure

The project must be planned, controlled and directed using a Work Breakdown Structure (WBS) as the basis for work planning, responsibility assignment, work authorization, problem identification, scheduling, budgeting, performance management, and analysis.

The work to be performed by the Contractor under this Phase 0 study is divided in four major Work Packages (WPs). Each WP has one or more associated major tasks.Figure 3-1 describes the top level Work breakdown Structures (WBS).

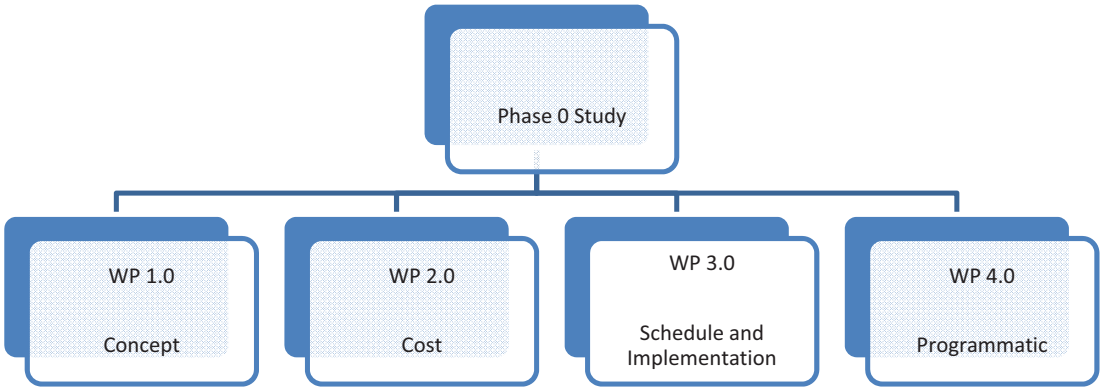

FIGURE 3-1 – WORK BREAKDOWN STRUCTURE (TOP LEVEL)

3.11 PROJECT SCHEDULE FOR PHASE 0 STUDY

The contractor should plan for a contract start date of January 1, 2014 and this Phase 0 Study must be completed by December 31, 2014. For planning purposes, Table 3-1 shows the major milestones for Phase 0. This schedule, once approved by Technical Authority (TA), will become the baseline schedule for the deliverables.

TABLE 3-1 – PROPOSED PROJECT MILESTONES SCHEDULE

Milestone	Proposed Date
Phase 0	
Contract Award	January 2014
Kick-off Meeting (KOM)	within 2 weeks ACA
Concept Review (CR)	3 months ACA
Preliminary Requirements Review (PRR)	6 months ACA
End of Phase 0 (EOP)	11 months ACA
Final Technical Report	December 2014

3.11.1 Phase 0 Study in Context of Project Life Cycle

Table 3-2 shows this RFP within the context of the entire mission life cycle. Only major milestone reviews are shown.

TABLE 3-2 – CONTEXT FOR PHASE 0 STUDY

Project Phases	Description	Milestones	Mechanism
-	Science, technology and application development programs	Produce science, technology and applications required for future missions	Various RFP's
0	Concept (Opportunity assessment and feasibility study)	Identification and characterization of the intended Concept Review (CR) Preliminary Requirements Review (PRR)	**This RFP**
A	Concept Development and Option Selection (Trade studies to select baseline Mission / Robotic manipulator and science/mission floor)	System Requirements Review (SRR)	Phase A RFP
B	Preliminary Design	Preliminary Design Review (PDR)	Usually Mission RFP by Phase (B+C,D)
C	Detailed Design	Critical Design Review (CDR)	
D	Implementation (Manufacture and Acceptance)	Acceptance Review (AR)	
E	Operations	Operations Readiness Review (OPR) / Data utilization and exploitation	As above, and other funding mechanisms for science
F	Disposal	Disposal Plan	-

3.12 TECHNOLOGY READINESS LEVEL ASSESSMENT

The Contractor must perform a Technology Readiness and Risk Assessment (TRRA) in accordance with the requirements of the CSA Technology Readiness and Risk Assessment Guidelines (AD-01) and the Technology Readiness Levels Handbook for Space Application (AD-04), to formally document the system technology status. The Contractor must produce CDRL 21 for the TRRA using Technology Readiness and Risks Assessment Worksheet (AD-05) for each Critical Technology Element (CTE) and rollup using AD-06. A Draft is to be delivered two weeks prior to each milestone and the final version two weeks before the End of Contract.

3.13 TECHNOLOGY ROADMAP

The Contractor must provide a Technology Development Plan, also known as the Technology Roadmap (TRM) (CDRL 22), including the required technology developments to meet mission needs, and a plan and timeline to reach TRL 4 at PRR, TRL 5 at PDR, and then to attain TRL 6 and 8. The TRM must also be provided in the format of AD-07. A Draft is to be delivered at each milestone and the final version two weeks before the End of Contract.

3.14 COST

The project cost is subdivided into the following elements beyond any contribution specified by TNO:

- Rough Order of Magnitude (ROM) cost; and
- Estimate of Canadian content.

3.14.1 Rough Order of Magnitude (ROM) of Cost

The Contractor must provide ROM cost estimates (CDRL 10) for all phases leading to the development, implementation, and operation of the FTS resulting from the proposed concept. The Contractor must develop the project life cycle ROM cost estimate (Phases ABCDE). The basis of estimate and assumptions must be clearly stated. Description of the cost estimation methodology must be provided. A top-down cost estimate derived from an analogous mission or a standard parametric cost model must be delivered. Quantification of the uncertainty in the estimate must be provided. The Contractor must provide complete visibility into the cost status of the program. Cost estimates at current phase completion must be provided in every report along with cost estimates at completion of subsequent phases.

3.14.2 Estimate of Canadian Content

The Contractor must provide an estimate of the anticipated percentage of Canadian content relative to the overall cost, what options could be undertaken to maximize the Canadian content, and their corresponding impacts and benefits. The Contractor must provide an overview of its strategy to develop and maintain Canadian capabilities. If the overall approach of the Contractor implies technology transfer and partnership with foreign entities to develop Canadian capabilities, then the Contractor must specify teaming arrangements, Intellectual Property (IP) ownership issues, royalties, and opportunities that such a partnership would open.

3.15 PRELIMINARY MISSION RISK ASSESSMENT

The Contractor must establish and implement a risk management system for the early identification and assessment of risks that might impact cost, schedule, programmatic and technical performance, and the development of appropriate risk response plans. The risk management process must consist of risk management planning, risk identification and assessment, risk response planning and risk tracking, monitoring and control. This assessment must also consider access to information issues, for example. International Traffic in Arms Regulations (ITAR) and Controlled Goods Registration Program (CGRP).

4 CONTRACT REVIEWS

4.1 REVIEWS AND MEETINGS

The Contractor must arrange and/or support the meetings described below. These meetings will be attended by representatives of the CSA and the University of Lethbridge, or other organizations nominated by the TA.

The Contractor must be responsible for providing agendas (CDRL 1) and minutes of all meetings (CDRL 8) held during the project, including teleconferences. Minutes will summarize discussions, record decisions, and assign actions to individuals.

4.1.1 Kick-off Meeting

At the beginning of the contract, the Contractor must hold a Phase 0 Kick-Off Meeting (KOM) in accordance with the schedule at Table 3-1. This meeting will serve to review the management plan initially provided with the proposal, the requirements of the work, contractual costs, schedules, deliverables and risks, and address contractual and any other outstanding issues. The KOM presentation (CDRL 2) must be submitted 5 working days prior to the meeting. The KOM data package (CDRL 17) must be delivered no later than 5 working days after the meeting. All key participants under the contract, including the University of Lethbridge and one representative from each major Subcontractor, must attend

4.1.2 Project Progress Reviews and Meetings

The Contractor must conduct Monthly Progress Reviews by teleconference with the TA or his representative, for the duration of the contract aimed at reviewing technical progress, technical issues, contractual cost, schedule, deliverables, risks, and Action Items Log (AIL) (CDRL 9). The Monthly Progress Review would also address contractual and any other outstanding issues. The TA will review all data produced to that point and assess Contractor progress, development risk, and potential non-compliance issues. The Contractor must report on all Product Assurance (PA) activities, and the Contractor PA management must participate in the review.

Additional teleconferences will be held if necessary when mutually agreed by the Contractor and the TA.

4.1.3 Concept Review (CR)

The purpose of the Concept Review (CR) is to demonstrate and confirm the feasibility, value and benefits of the project for the CSA. The objectives of the CR are to confirm that:

1) Project objectives and needs are clearly understood and comprehensively defined to provide a baseline for the purpose of this study;
2) Feasibility study proves that the project is indeed feasible;
3) Conceptual design meets mission objectives and needs;
4) Interfaces with external systems are identified and adopted as a baseline to fulfill the purpose of this study;
5) Technology dependencies (i.e. new or emerging technologies on which the project depends) are understood and alternative strategies to achieve the objectives are identified;

6) Preliminary project planning provides an approximation of the resources required for project execution, including preliminary life-cycle costs, schedule, and programmatic resources;
7) Technology Readiness Assessment (TRA) and Risk Analysis have been initiated and potential risks identified.

Successful completion of the CR demonstrates that the project is feasible and worthy. The Project Team understands the mission/project objectives and needs and the project is ready to proceed with the development of requirements.

The CR presentation (CDRL 4) must be submitted 5 working days prior to the meeting. The CR data package (CDRL 18) must be delivered no later than 5 working days after the meeting. All key participants under the contract, including the University of Lethbridge and one representative from each major Subcontractor, must attend. The CSA reserves the right to invite additional people (Public Servants or others under Non-Disclosure Agreement (NDA)) to this meeting.

4.1.4 Preliminary Requirements Review (PRR)

The purpose of the Preliminary Requirements Review (PRR) is to demonstrate the validity of the preliminary requirements and the project readiness to proceed with the development of system requirements. The objectives of the PRR are to confirm that:

1) Mission/project objectives and needs have been logically and fully flowed down to the preliminary requirements;
2) Preliminary requirements are defined and verifiable, and identify external and long-lead support requirements (e.g. Other Government Departments (OGDs), international and facility resources);
3) Preliminary system conceptual design meets mission/project requirements and is feasible;
4) External interface requirements are characterized;
5) Internal interface requirements are identified;
6) Key technical, project cost, schedule, programmatic challenges, and associated risks are identified;
7) Life-cycle costs and schedule are refined;
8) Preliminary project planning demonstrates technical and programmatic feasibility of project execution within estimated cost, schedule, and programmatic resources in a way that accommodates foreseen constraints;
9) Synergies and dependencies with other organizations or projects have been identified and accounted for in the planning and risks.

Successful completion of the PRR confirms that the preliminary system conceptual design and the mission/project requirements meet the Project Sponsor's needs and are feasible, and constitutes readiness to proceed with the development of system requirements.

The PRR presentation (CDRL 5) must be submitted five (5) working days prior to the meeting. The PRR data package (CDRL 19) including Preliminary Requirements Document (CDRL 12) the must be delivered no later than five (5) working days after the meeting. All key participants under the contract, including the University of Lethbridge and one representative from each major Subcontractor, must attend. The CSA reserves the right to invite additional people (Public Servants or others under Non-Disclosure Agreement (NDA)) to this meeting.

4.1.5 End of Phase (EOP) Review Meeting

The Contractor must support the End of Phase 0 Review Meeting as schedule in Table 3-1. The aim of this meeting is to discuss in detail the results obtained and the proposed follow-on activities. This meeting is intended to provide an opportunity for the Contractor, the Technical Authority (TA), the Scientific Authority, the University of Lethbridge, and other invitees to review and discuss the project.

The EOP presentation (CDRL 6) must be submitted five (5) working days prior to the meeting. The EOP data package (CDRL 20) must be delivered no later than five (5) working days after the meeting. All key participants under the contract, including the University of Lethbridge and one representative from each major Subcontractor, must attend. The CSA reserves the right to invite additional people (Public Servants or others under Non-Disclosure Agreement (NDA)) to this meeting.

4.1.6 Weekly Status Teleconference

The Contractor must support the Weekly Status Teleconference Meetings. The specific intent of these telecon meetings is to present the work progresses, maintain good coordination and communications between the CSA and the project team and discuss and solve any issues that the project team may encounter. The weekly status teleconference presentation (CDRL 6) must be submitted the day before of the meeting. The Action Items Log (AIL) will be updated accordingly; minutes are optional for the weekly telecons.

5 CONTRACT DELIVERABLES

5.1 PROGRESS REPORTS

The Contractor must submit Monthly Progress Reports (CDRL 3) by e-mail to the TA every no later than 10 working days after the end of the month covered by the report.

5.1.1 Action Items Log

The Contractor must maintain a detailed Action Items Log (AIL) throughout the contract to track actions resulting from all management reviews, technical reviews and meetings, including teleconferences and Contractor internal meetings (CDRL 9). The Action Item Log must be updated and included with the Monthly Progress Report.

5.1.2 Liaison and Communications Requirements

The Contractor must establish channels of communication with the TA and the University of Lethbridge to monitor the overall project and performance.

The Contractor must provide access to its plant and personnel, at mutually agreeable dates, to representatives of the CSA, the University of Lethbridge, or other organizations nominated by the TA.

All documentation and data generated by the Contractor and its major subcontractors for the project must be accessible to the TA for review.

5.1.3 Deliverable Documentation

The Contractor must prepare and deliver the documentation as defined in the CDRL List (page 27), and the Data Item Descriptions (DIDs), Appendix D.

Documents submitted by the Contractor will be approved or reviewed in accordance with the process described in DID-0000.

The Contractor must use the English language and System International (SI) units in all correspondence or include a conversion factors table for all non-SI units used in the deliverable documents.

The delivery schedule for all documentation is defined in Table 3-1. Where two deliveries of the same document are called for, the second delivery may be satisfied by a statement indicating that the previous issue of the document still applies (referenced by title, document number and issue), if such is the case.

The Contractor must obtain approval from the TA as per the document approval procedures below for all CDRL documents listed in Table C-2 and marked as Approval Category "A".

5.1.3.1 Document Deliverables, Format and Content

Documents requested in this SOW must be provided with the format and content specified in the relevant DID.

5.1.3.2 Documents Delivered for Approval

Documents submitted within the context of a formal review, and identified in the CDRL as requiring “Approval”, will be reviewed in accordance with the process described in DID-0000.

For documents submitted for "Approval" outside the context of a formal review, 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.

5.1.3.3 Documents Delivered for Review

The term "Review" as used in this document and in all other documents referred to herein, means, unless specifically stated otherwise, the review, by the TA, of documents submitted for that purpose by the Contractor. The acceptance by the TA of a document for review implies that the document has been reviewed, commented on, revised as necessary, and has been determined to meet the requirements. CSA does not take responsibility for the validity of the data or statements, and the Contractor is fully responsible for the content and secondary effects derived there from. In the event that the TA does not concur with a document submitted for review, the TA will so notify the Contractor within fifteen (15) working days of the document submission. Such notification will include a full explanation of the reasons for the lack of concurrence and will recommend the additions, deletions and/or corrections, which the TA deems are beneficial to project.

If written notification of concurrence is not provided by the TA or his substitute identified expressively by the TA or Contracting Authority in case of short term leave of the TA within fifteen (15) working days of the receipt of the document, the document must be deemed to have been reviewed and accepted by the TA without comment.

5.1.4 Intellectual Property Management

The Contractor must mark or identify any proprietary information delivered to the TA under the Contract as 'Property of (Contractor's name), permitted Government of Canada uses defined under PWGSC Contract No. 9F045-130081/001.

The Contractor must prepare a Background and Foreground Intellectual Property (BIP/FIP) disclosure report (CDRL 16). The BIP/FIP disclosure report must include the following:

- Disclosure of BIP employed in completing the work
- Detailed description of the FIP developed, including document/software version control information
- Under which category does the FIP fall and why (patents, inventions, trade secrets, copyright, industrial design, know-how, rights in integrated circuit topography, etc)
- Have there been any publications or disclosures made? If so, to whom, when, where, how and why?
- Confirmation of ownership by the prime contractor or its subcontractors.

5.2 GOVERNMENT POLICY

5.2.1 Export Permits

The Contractor must obtain all necessary export permits to allow the import of materials and components in Canada and export of EIK Engineering Models and technical documentation to the United States.

5.2.2 International Traffic in Arms Regulations

The Contractor must obtain the necessary approvals required by the US State Department Directorate of Defense Trade Controls (DDTC) relating to the International Traffic in Arms Regulations (ITAR) [Document RD-05] Regulation 22 C.F.R. Chapter 1, Subchapter M Parts 120-130.

5.3 CONTRACTOR DELIVERABLES

5.3.1 Phases ABDCE Project Schedule

The Contractor must provide a schedule estimate for Phases A, B, C, D and E as described at DID-0009 (CDRL 11).

5.3.2 Documentation

Documents requested in this SOW must be provided with the format and content specified in the relevant DID (Appendix D). The delivery schedule for all documentation is defined in Appendix C. 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.

The TA will provide approval or disapproval within ten (10) 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. If written notification of concurrence is not provided by the TA within 10 working days of the receipt of the document, the document must be deemed to have been reviewed and accepted by the TA without comment.

APPENDICES

A FTS SPECIFICATIONS

The FTS Specifications are listed in the Applicable Documents (AD-02) and can be found on the ftp site specified in the RFP.

B DOCUMENTATION DELIVERABLES

The Contractor must deliver all documentation requested at Table C-2 – PHASE 0 CDRLs.

B.1 DOCUMENT NAMING CONVENTION

This annex presents the naming convention for all documentation generated under this RFP. Document names contain three (3) main components:

6. Project Identifier (section B.1.1)
7. Contract Number (section B.1.2)
8. Date Tracking Number (section B.1.3)

- Example:
  - WXYZ-TYPE-NUM-CIE_ContractNumber_sent2007-03-30

Where

- **WXYZ-TYPE-NUM-CIE** is the Project Identifier
- **_ContractNumber** is the Contract Number
- **_sent2007-03-30** is the Date Tracking Number

B.1.1 Project Identifier

The project identifier should contain:

- **WXYZ:** A 4-8 letter acronym of the project
- **TYPE:** A 2 letter acronym according to the table below:

TABLE B-1 – PROJECT IDENTIFIER ACRONYM

Acronym	Description
AG	Agenda
ES	Executive Summary
FR	Final Report
MN	Minutes of meeting
PT	Presentation
PR	Progress Report
TN	Technical Note
TR	Travel Report

- **NUM:** A three digits sequential number (e.g. 001, 002, etc.)
- **CIE:** Name of Company (no space, no hyphen)

B.1.2 Contract Number

- For example: _9F028-07-4200-03

B.1.3 Date Tracking Number

- Sent YEAR-MONTH-DAY

C CONTRACT DATA REQUIREMENTS LIST (CDRL)

This Appendix defines the documentation to be delivered by the Contractor 0.

C.1 ABBREVIATIONS APPROVAL / REVIEW

TABLE C-1 – CATEGORY

Abbreviation	Definition
A	Approval See Section 5.1.3.2.
R	Review See Section 5.1.3.3.
CF	Contractor Format

C.2 DISTRIBUTION AND COPIES

All documents must be provided in the format specified in the relevant DID.

C.3 CDRL LIST

Table C-2 lists the documentation to be delivered by the Contractor. All documents must be provided in the format specified in the relevant DID.

TABLE C-2 – PHASE 0 CDRLS

CDRL No.	Title	DID No.	SOW Para	OTHER	KOM	CR	PRR	EOP	Approval / Review
1	Meeting Agenda	01	4.1	X	X	X	X	X	A
2	Kick-Off Meeting Presentation	02	4.1.1		X				A
3	Progress Report	03	5.1	X					A
4	CR Presentation	CF	4.1.3			X			R
5	PRR Presentation	CF	4.1.4				X		R
6	EOP Meeting Presentation	04	4.1.5					X	R
7	Weekly Status Telecon Presentation	05	4.1.6	X					R
8	Meeting Minutes	06	4.1	X	X	X	X	X	A
9	Action Items Log (AIL)	07	4.1.2	X	X	X	X	X	R
10	ROM Cost Estimate	08	3.14.1					X	A
11	Phases A/B/C/D/E Project Schedule	09	5.3.1					X	A
12	Preliminary Requirements Document	10	4.1.4				X		A
13	Conceptual Design Documents	11	3.9.2				X		A
14	Executive Report	12						X	A
15	Technical Report	13	1.6					X	A
16	Intellectual Property (IP) Disclosure	14	5.1.4					X	A
17	Review Data Package – KOM	15	4.1.1		X				R
18	Review Data Package – CR	15	4.1.3			X			R
19	Review Data Package – PRR	15	4.1.4				X		R
20	Review Data Package – EOP	15	4.1.5					X	R
21	Technology Readiness and Risk Assessment Worksheets and Rollup	19	3.12 3.15		X	X	X	X	A
22	Technology Roadmap (TRM) Worksheet	20	3.13		X	X	X	X	A

CDRL No.	Title	DID No.	SOW Para	OTHER	KOM	CR	PRR	EOP	Approval / Review
23	Travel Report	16		X					A
24	Contract Plan and Report Form	17		X					R
25	Feasibility Study	CF	3.9.4					X	R

D DATA ITEMS DESCRIPTIONS (DIDS)

DID-0000 – Deliverable Document and Data Requirements

1. PURPOSE:

1.1. 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

c. document and data structure requirements

d. document and data identification requirements

e. metadata requirements for all document and data submissions.

PREPARATION INSTRUCTIONS:

2. GENERAL REQUIREMENTS

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

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

2.3. Documents and data shall be submitted with an accompanying data package. The data package file for each deliverable shall contain the metadata specified in Appendix A

2.4. When specified, documents may be prepared in the Contractor's format, however they shall also meet the requirements of this DID.

3. DELIVERY METHOD

3.1. The method of document and data submission and receipt will be coordinated by CSA and the project's contractor:

3.1.1. When feasible, document and data submission and receipt will be by direct data transfer between the contractor and CSA's data systems

3.1.2. If the capability to exchange documents and data per paragraph 3.1.1 has not been established, documents and data may be delivered via

a. e-mail attachments;

b. direct transfer (FTP);

c. direct deposit in CSA's data system (when established);

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.

3.1.3. Electronic documents and data or notifications of their availability shall be sent to the CSA CM Receipt Desk: CM_Receipt@asc-csa.gc.ca

3.1.4. If deliverables contain ITAR content, notifications of their availability on contractor repositories shall be sent to: CSA-CM-ITAR@asc-csa.gc.ca

3.1.5. Emails are to contain:

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

b. in the email text:

1) the CDRL identifier under which the deliverable document or data item is being submitted

2) the document identifier (document number and revision identifier) and

3) the document title.

3.1.6. 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
Longueuil, QC, J3Y 8Y9
CANADA

3.1.7. The DVD/CD-ROM labels shall 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 (see requirements in Appendix B)
i. Sub-CDRL Identifier (if applicable– see requirements in Appendix B)
j. Security Designation of the contents. Indicate if contents are subject to ITAR, when applicable.

3.1.8. 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.

4. LETTER OF TRANSMITTAL - SUBMISSION AND RECEIPT

Unless exchanged directly between the contractor and CSA's data systems, documents and data items shall be submitted via Letter of Transmittal. The Letter of Transmittal shall be in electronic format and ideally be combined with the Data Package required with each deliverable per Appendix A. The Letter of Transmittal and the acknowledgement of its receipt may be in email format if mutually agreed by the TA and the Contractor.

For each document or data item and when not combined with the Data Package per Appendix A, the Letter of Transmittal shall contain as a minimum:

a. Project Identifier

b. Contract Serial Number

c. CDRL Number (in conformance with the requirements in Appendix B)

d. Document Identifier (Document number, volume identifier (if applicable) and revision identifier)

e. Document Title.

If physical media are involved, a printed copy of the Letter of Transmittal shall be enclosed in addition to the electronic notification. A copy of the Letter of Transmittal shall be signed as acknowledgement of receipt and a scanned copy will be returned to the Contractor.

5. DOCUMENT STRUCTURE AND CONTENT

5.1. Electronic Document Format

5.1.1. Electronic copies of text documents shall be formatted for printing on 8.5" x 11" paper.

5.1.2. Page Numbering: Documents shall include page numbers and may be formatted according to the contractor's normal standard. If the document is divided into volumes, each volume shall restart the page numbering sequence.

5.1.3. Document Identifiers: All pages shall contain the full document identifier at the top of the page. Document identifiers shall include the document number, revision identifier and volume identification (when applicable).

5.2. Document Structure

Except as otherwise specified, all documents shall have the following structure:

a. Cover/Title Page;

b. Table of Contents;

c. Scope;

d. Applicable and Reference Documents;

e. Body of Document; and

f. Appendices

5.3. Cover/Title Page

The title page shall contain the following information:

a. Document Number
b. Volume x of y (if multivolume)
c. Revision identifier
d. Date of Revision
e. Document Title
f. Project Name
g. Contract No.
h. CDRL Item Identifier (see requirements in Appendix B)
i. Sub-CDRL Identifier (if applicable – see requirements in Appendix B)
j. ITAR label, if applicable
k. Prepared for: Canadian Space Agency
l. Prepared by: Contractor name, CAGE Code, address, and phone number
m. Product tree identifier, if applicable
n. © HER MAJESTY THE QUEEN IN RIGHT OF CANADA [YEAR]

5.4. Table of Contents

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

5.5. Scope

This section shall be identified as section 1 and shall, as a minimum, provide the following information:

a. Identification (number, title) of the system, hardware, or software to which the document applies;
b. A brief overview of the system to which the document applies; and
c. A summary of the purpose and content of the document.

The requirements specified in the following DIDs are the minimum expected. The Contractor shall include in all documents all additional information required to ensure that the document provided will achieve its purpose as stated in the DID.

5.6. Applicable and Reference Documents

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

5.7. Body of Document

The body of the document shall be prepared in accordance with the content and format requirements defined in the specific Data Item Description.

5.8. Appendices

Appendices may be used to provide information published separately for convenience of document maintenance.

6. SUBMISSION OF DATA

Data must be submitted via Letter of Transmittal (or an electronic equivalent as mutually agreed by the TA and the Contractor), and acknowledged. The Letter of Transmittal will contain as a minimum, the Contract Serial Number, the CDRL Number and the Title. The Letter of Transmittal must be forwarded by the Contractor in two copies; one copy of acknowledgement to be signed and returned to the Contractor by the recipient.

DID-0000 Appendix A

Data Package Requirements for Contract Deliverables

Provided by Supplier	Metadata Description	Comments
Yes	CSA Project Identifier	Project Acronym
Yes	Contract Identifier	PWGSC identifier
Yes	Contract Revision Identifier	PWGSC identifier
Optional	Contract Revision Date	
Yes	SOW Identifier	CSA Doc ID
Yes	SOW Revision Identifier	CSA Doc Revision ID
Yes	Document Type	Dwg, Doc, RFD, RFW, ECR, ECN, IP CR, IP CN/CD, QN, etc.
Yes	CDRL Identifier	Per CSA SOW (e.g. EN006)
When applicable	CDRL Sub-category Identifier	If multiple, separate subject documents per CDRL item (e.g. EN006-03) (can be contractor defined but must maintain the SOW CDRL identifier as the prefix)
Optional	Project WBS identifier	
Optional	SOW paragraph identifier.	
Optional	DID/ DRD Identifier	
Yes	Deliverable submission format	Electronic, Hard copy, On media (CD-ROM, etc.)
Yes	Deliverable Transmittal Identifier	e.g. CADM09-0123. Can also be a notification of delivery identifier
Yes	Deliverable Transmittal Date	
Yes	Originator's Organization Identifier	CAGE code (recommended), company name, short name, etc.
Optional	Document Author	
Yes	Deliverable Type	Dwg, Doc, RFD, RFW, ECR, ECN, NCR, Problem Report, IP CR, IP CN/CD, QN, etc.
Yes	Document Type	Specification, Design, Plan, Tech Note, Report, etc.
Yes	Originator's Document Identifier	
When applicable	Originator's Document Volume Identifier	
When applicable	Originator's Document Part Identifier	
When applicable	Originator's Document Issue Identifier	When both Issue and Revision are used concurrently to identify released documents
Yes	Originator's Document Revision	

Provided by Supplier	Metadata Description	Comments
	Identifier	
Yes	Originator's Document Title	
Yes	Document Release Date	
Yes	Document Effective Date	Applicable to document changes, deviations, waivers,
Yes	Document Expiry Date	If applicable
When applicable	Originator's Authorizing ECN Identifier	Class 2 ECN approving document release and submission to customer
Yes	Document Maturity	Draft, Preliminary, Initial Release, Updated Revision, etc.
When applicable	Class	If deliverable is a change, deviation, waiver, etc. to a released item. (Class I, Class II)
Yes	Security Classification of Deliverable	Per Government of Canada definitions for Classified and Protected data (C,S,TS,PA,PB,PC)
Yes	Sensitivity of Document contents	Company Proprietary, Trade Secret, etc.
Yes	ITAR Content Indicator	Yes or No
Yes	Export Controlled Content Indicator	Yes or No
Yes	Affected Document Identifier	If deliverable is a change, deviation, waiver, etc. to a released document/drawing/model. Enables change-to-document, waiver-to-document relationships, etc.
Yes	Affected Document Revision Identifier	As above
Yes	Affected Document Title	As above
Yes	Product Breakdown Structure / Item Hierarchy Identifier	Critical for Item-to-Document Relationship
Yes	Associated Project/System Milestone Review	PDR, CDR, etc. When Reviews are at sub-system level, identify accordingly. e.g. Bus PDR
When applicable	Associated System Baseline	If different from Project Milestone
Yes	Filename of Deliverable	Filename and file type (for all representations submitted - .doc, .pdf, etc.). Original, revisable format to be delivered before contract completion.
Yes	Format of Deliverable / Application used to produce	MS WORD 2007, Project Scheduler 9, etc.
When applicable	Filename of Parent Deliverable Bundle	If part of a document Bill of Material
When applicable	Identification of Delivery Media	If physically delivered
When applicable	Originator's Repository Address of deliverable	To identify source location of document

DID-0000 Appendix B

Deliverable Requirements Identification

The Contract Data Requirements List (CDRL) identifies the document and data deliverables of projects. The CDRL Identifier enables:

1. tracking individual document/data requirements;
2. linking deliverables submitted by the contractor to the documents/data requirements;
3. determining evaluator roles and responsibilities;
4. deliverable distribution and evaluation; and
5. determining project status and actions required.

CDRL and sub-CDRL identification requires a consistent format. This format must not be altered by the contractor or sub-contractors. Should there be a need for the contractor to use additional identifiers to manage the allocation of CDRL items to sub-contractors, then a separate identifier may be used but it must not be concatenated with the CDRL and sub-CDRL identifier.

The following CDRL and Sub-CDRL identification requirements are mandatory for CSA, PWGSC and contractors when writing SOWs, RFPs, proposals and contracts:

CDRL Identifier format: AANNN

Where AA = two alpha characters defining the CDRL category e.g. EN, PA, PM, etc

Where NNN = three (3) digits sequentially issued within the CDRL category e.g. EN001, EN002

Sub-CDRL Identifier: NN

Where NN = two (2) digits denoting multiple, different deliverables under the same CDRL identifier (if required) e.g. 01, 02, 03, etc.

Deliverables are to have a one-to-one relationship with the combined CDRL Identifier and Sub-CDRL Identifier.

If required, the CDRL Identifier and Sub-CDRL Identifier can be concatenated and joined by a dash (“-"). e.g. EN001-02

If contractors require sub-contractor identification for each CDRL + Sub-CDRL combination, then this should be managed in a look-up table and not added to the CDRL identifier. The contractor's document identifier can be linked when known. For example:

CDRL	Sub-CDRL	Sub-contractor	Sub-contractor CAGE Code	Contractor's Document Identifier
EN018	01	MDA-R		RCM-SP-52-7640
EN024	03	CDV		CDV TN 35011-043
PA001	01	MSCI		NEO-PL-0146

All revisions of a deliverable are to relate to the same CDRL and Sub-CDRL combination. The status of each revision is to be tracked as: Submitted, Approved, Disapproved, Superseded, etc. Approved deliverables will be added to the project baseline. Later revisions resulting from approved change requests will supersede earlier approved versions.

DID-0001 – Meeting Agenda

PURPOSE:

To clarify the purpose, attendees, 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; and

f) Expected duration.

2. DOCUMENT BODY:

a) Introduction;

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; and

h) Set or confirm dates of future meetings.

DID-0002 – Kick-Off Meeting Presentation

PURPOSE:

The purpose of the Kick-Off Meeting (KOM) is to review the scope of the Phase 0. Within two weeks of the award of the contract (or at a date mutually agreeable to by the Technical Authority and the Contractor) a Kick-Off Meeting must be held.

PREPARATION INSTRUCTIONS:

The Kick-Off meeting Presentation must contain the following information, as a minimum:

1) Review major assumptions for the Phase 0;
2) Review contract deliverables;
3) Review the requirements of the work and WBS status;
4) Review the work schedules;
5) Discuss IP (BIP and FIP);
6) Review funding and expected cash flow;
7) Discuss any licensing issues;
8) Other items as deemed appropriate; and
9) Meet the personnel assigned to the work.

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 Monthly Progress Report must include status data and information summarizing project management, technical and schedule progress and accomplishment for each element of the Contractor's Work Breakdown Structure (CWBS). The report must address the major activities of the reporting period and must emphasize major achievements and events of special significance. Difficulties and/or problems that have affected the work progress, proposed corrective actions, and project impact expected, must also be reported.

Each progress report 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.

The Progress Report must include the following information, as a minimum:

1) Summary outlook, including technical performance, work performed, schedule and cost status (at CWBS level 2), and areas of concerns;
2) Status of the work in progress, specifically the work performed in the previous calendar period;
3) The work projected for the next period;
4) Detailed project schedule status including percent of completion;
5) Financial status including actual and forecasted expenditures, by month, as compared to the original monthly planned expenditure profile;
6) Cost and schedule variances from the plan, including deviations from schedule and proposed corrective actions for significant variances;
7) Description of trips connected with the Contract during the period of the report;
8) Equipment ordered, received, made and assembled;

9) PA reporting:
   a) A narrative section describing: significant accomplishments during the reporting period, audits performed, significant problems, recommended solutions, and corrective action status, significant changes in the PA Organization and Program related organizations,
   b) Summary tables or updates as applicable:
      i) Deviations/Waivers status,
      ii) List of Class I Non-conformances,
      iii) List of Class II Non-conformances,
      iv) PA documentation status,
10) Status of all action items from previous review(s) and meeting(s).

DID-0004 – EOP Meeting Presentation

PURPOSE:

The purpose of this meeting is to present the overall results of the work done in this Phase 0 study.

PREPARATION INSTRUCTIONS:

This EOP Review Meeting provides an opportunity for the Contractor, the TA, the SA, and other invited attendees to review and discuss in detail the overall results of the Study. The EOP meeting Presentation must contain the following information, as a minimum:

1) Detailed presentation of the work conducted (presentation of the content of the technical report, concept, interface, feasibility, ect.);
2) Phase A-E comparative cost estimate and schedule;
3) Technology development strategy;
4) Technical and programmatic issues, if any;
5) List of deliverables;
6) Disclosure of IP (BIP and FIP);
7) Licensing issues;
8) Animation; and
9) Other items as deemed appropriate.

DID-0005 – Weekly Status Telecon Presentation

PURPOSE:

The purpose of the weekly status telecon presentation is to present the work progress made since the previous weekly meeting.

PREPARATION INSTRUCTIONS:

1. GENERIC FORMAT AND CONTENT

The Weekly Status Telecon Presentation must contain the following information, as a minimum:

1. Current status of the work;
2. Explanation of any variation from the plan work;
3. Upcoming activities;
4. Project schedule;
5. Project budget;
6. Area of concerns, if any;
7. Other items as deemed appropriate.

DID-0006 –Meeting Minutes

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 and date,
   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 for 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) Open Date;
4) Source of AI (e.g. PDR meeting, RID, etc.);
5) Originator;
6) Office of Prime Interest (OPI);
7) Person responsible (for taking action);
8) Target/Actual Date of Resolution;
9) Status (Open or Closed); and
10) Remarks.

The date in column 8 will be the target date as long as the item is open, and the actual date once the item is closed.

DID-0008 – ROM Cost Estimates

PURPOSE:

To provide CSA with an ROM estimate of costs for the SAFARI FTS Mechanism.

PREPARATION INSTRUCTIONS:

1. COST ESTIMATES

1) Cost estimates must be provided, as follows:
   a) Comparative cost estimate for the SAFARI FTS Mechanism, based on analogous mission, or
   b) Comparative cost estimate for the SAFARI FTS Mechanism, based on a standard parametric cost model.

2. COMPARATIVE ESTIMATES

1) The estimates named in paragraph 1(a), and 1(b) of this DID must be based on the following Cost Work Breakdown Structure. Additions to this WBS may be made following consultation with CSA.

Number	Description
1	Overall Project
1.5	SAFARI FTS Mechanism support
1.5.3	Mission/User/system requirements definition
1.5.4	SAFARI FTS Mechanism
1.5.5	Integration, Assembly Test & Check out
1.10	System Integration, Assembly, Test & Check Out

2) For estimates 1(a), or 1(b), the following information must be provided for each element of the Cost Work Breakdown Structure, broken-down by project phase and further broken-down by Government of Canada Fiscal Year:
   a) Price charged under contract in Actual Fiscal Year $CAD for the original project (i.e. including markup and fee)
   b) Total Labour (person-hours or person-days) for the original project.

3) For estimates 1(a), or 1(b), the following information must be provided for each element of the Cost Work Breakdown Structure, broken-down by project phase:
   a) Total for Item 3(a), adjusted to FY13/14 $CAD. The historical inflation rates (percentage, and dollar value) used must be clearly indicated in the estimates, as well as the rationale for choosing that rate.
   b) List of adjustments to 4(a), representing differences/changes with SAFARI FTS Mechanism (or the management thereof), expressed in FY13/14 $CAD. A description of each adjustment must be included as part of each cost estimate.
   c) Total value of item 4(a), adjusted by item 4(b), expressed in FY13/14 $CAD.

4) For estimates 1(a), or 1(b), the following information must be provided for each element of the Cost Work Breakdown Structure, broken-down by project phase and further broken-down by Government of Canada Fiscal Year:
   a) Value from 4(c), projected into future fiscal years as per the project schedule, expressed in projected Actual Fiscal Year $CAD. The projected inflation rate (percentage, and dollar value) used must be clearly indicated in the estimates.

5) A numbered list of assumptions must be provided. Each assumption must indicate which estimate it applies to: 1(a) and/or 1(b). All dollar figures expressed in the assumptions must be in FY13/14 $CAD.

6) In support of 1(a), and 1(b), following values of the following parameters must be recorded. For the SAFARI FTS Mechanism, this must be a best estimate based on all available information at the time when the estimates were prepared:
   a) mass
   b) volume
   c) power

3. COST UNCERTAINTY AND RISK

1) Quantification of the cost uncertainty surrounding the estimate must be provided in the form of a probability distribution.
2) A risk reserve must be recommended for each phase.

DID-0009 – Phases A/B/C/D/E Project Schedule Estimate

PURPOSE:

To provide a schedule estimate for Phases A, B, C, D and E.

PREPARATION INSTRUCTIONS:

The Phases A/B/C/D/E Schedule Estimate may be prepared in the Contractor's format, must be based on the Phases A, B, C, D and E WBS, and must, as a minimum, contain the following information:

1) The schedule must include all elements of the system.
2) All design reviews must be shown.
3) All mission level readiness reviews must be indicated.
4) The schedule must be at a level sufficient to support project management reviews and interface activities between the organizations part of the Mars 2018 Mission.
5) Dependencies,
6) Resource requirements,
7) The start and end date of each task,
8) Task duration,
9) Deadlines and milestones.
10) The schedule must show dependencies between the Contractor and other organizations.
11) The schedule must be provided in its native tool format; MS project is the preferred format.
12) The Contractor must also prepare preliminary networks to a level indicating the critical path activities and events:
    a) This schedule must continue through spacecraft level assembly, integration, test, launch site and early operation activities again clearly indicating critical path activities and events.
    b) Modelling and environmental testing requirements for the robotic manipulator must be clearly shown.

DID-0010 – Preliminary Requirements Document

PURPOSE:

To define the functional, performance, environmental and other requirements for a given system, subsystem, unit, module or assembly and to provide the basis on which the Specifications Documents will be developed.

NOTE: Requirements Documents are sometimes called "Requirements Specification". This DID applies to them as well.

PREPARATION INSTRUCTIONS:

Preliminary requirements documents must define the requirements on the subject item (product structure node) as a whole and must not contain specific requirements on sub-items. All requirements must be verifiable on the item as integrated.

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

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

Requirements must conform to the following standards for quality:

a) They must be unambiguously clear to the intended readership;
b) Each requirement must have a unique identifier (e.g. An id number or paragraph number);
c) They must not define design solutions;
d) They must be verifiable, preferably by test;
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-0011 – Conceptual Design Documents

PURPOSE:

To assist in formalizing ideas for the design of the system, and allocating the requirements to subsystems, and to demonstrate feasibility and support programmatic estimates.

PREPARATION INSTRUCTIONS:

1. GENERAL CONTENTS

Each document must contain as a minimum:

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.
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 space systems, flight software and ground systems.

DID-0012 – Executive Report

PURPOSE:

The purpose of the Executive Report is to describe the entire project for dissemination in the public domain.

PREPARATION INSTRUCTIONS:

1. GENERIC FORMAT AND CONTENT

The Executive Report will be place in the public domain (e.g. CSA's library, publication and/or website). The report should not exceed five (5) pages. The Contractor must submit an electronic copy plus one (1) hard copy of the Executive Report in the Final Data Package.

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

1) Summary (an "executive summary" paragraph of the project, 500 words or less, as a short but comprehensive description of the activities and results suitable for a public announcement, webpage, etc.)
2) Introduction;
3) Project Objectives;
4) Approach / Project Tasks;
5) Accomplishments
6) Technology:
   a) Innovative Aspects;
   b) Application Fields;
7) Business Potential, Benefit and Impact on the organisation;
8) Ownership of Intellectual Property; and
9) Publications / References

The Contractor must use the following the Proprietary statement:

DID-0013 – Technical Report

PURPOSE:

The purpose of the Technical Report is to fully describe the technical work done, problems encountered and achieved objectives.

PREPARATION INSTRUCTIONS:

1. GENERIC FORMAT AND CONTENT

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

1. Concept
   a. Overall Concept
      i. Mission description,
      ii. Contribution to mission,
      iii. System level approach,
      iv. Innovation,
      v. Critical aspects,
      vi. Preliminary requirements, and
      vii. Traceability to mission requirements.
   b. Conceptual Design
      i. Technical approach and possible options,
      ii. Preliminary layout,
      iii. Functional block diagram,
      iv. Related subsystems identification,
      v. Subsystems trade-offs, and
      vi. Preliminary Concept of Operation.
   c. Interface Definition
   d. Feasibility
      i. Intrinsic technical constraints,
      ii. External operating constraints, and
      iii. Potential solutions.
   e. Compatibility with the SPICA / SAFARI mission

f. Preliminary Requirements
    i. Mission needs,
    ii. Key system parameters,
    iii. Expected performance, and
    iv. Reliability.
    v. Technology Performance Measures:
        1. Preliminary functional requirements,
        2. Preliminary performance targets, and
        3. Resources budgets (mass, power, thermal, processing power, etc.);

2. Cost
    a. ROM cost estimate, and
    b. Estimate of the Canadian Content

3. Schedule and Implementation
    a. Schedule
    b. Collaboration
        i. Identified collaborators,
        ii. Types of agreements,
        iii. Mechanisms, and
        iv. Potential difficulties.
    c. Roadmap
        i. Current TRL of the proposed concept/technology,
        ii. Required TRL for mission needs,
        iii. Required technology development to meet mission needs, and
        iv. Plan and timeline to reach required TRL.
    d. Development and Manufacturing Approach
        i. Development approach,
        ii. Subsystem providers,
        iii. Key subcontractors,
        iv. General strategy,
        v. Development tasks, and
        vi. Manufacturing tasks.

4. Programmatic

a. Preliminary Risk Assessment and mitigation:
    i. Technology,
    ii. Schedule,
    iii. Cost, and
    iv. Programmatic.
b. Canadian Capabilities Development,
c. Intellectual Property (IP) Management
    i. BIP, and
    ii. FIP.

DID-0014 – Contractor Disclosure Of Intellectual Property

PURPOSE

This DID contains preparation instruction for the Background and Foreground Intellectual Property (BIP/FIP) Report generated under the work described in the SOW.

---

5. Contractor Legal Name:
6. Project Title supported by the Contract:
7. CSA Project Manager of the Contract:
8. Contract #:
9. Date of the disclosure:
10. Will there be Contractor's Background Intellectual Property brought to the project:
    - ☐ Yes_ Complete Table 1 attached (Disclosure of Background Intellectual Property)
    - ☐ No
11. For Canada's owned IP, are there any IP elements that, to your opinion, would benefit from being patented by Canada?
    - ☐ Not applicable, FIP resides with the Contractor
    - ☐ Yes_ Complete Table 3 attached (Canada's Owned Additional Information)
    - ☐ No

1. DEFINITIONS

Term	Definition
Intellectual Property (IP)	any information or knowledge of an industrial, scientific, technical, commercial artistic or otherwise creative nature relating to the work recorded in any form or medium; this includes patents, copyright, industrial design, integrated circuit topography, patterns, samples, know-how, prototypes, reports, plans, drawings, Software, etc.
Background Intellectual Property (BIP)	IP that is incorporated into the Work or necessary for the performance of the Work and that is proprietary to or the confidential information of the Contractor, its subcontractors or any other third party.
Foreground Intellectual Property (FIP)	IP that is first conceived, developed, produced or reduced to practice as part of the Work under the Contract.

2. INSTRUCTIONS TO THE CONTRACTOR

2.1. Identification

The Contractor must respond to the 7 questions at the top of this page when Foreground Intellectual Property (FIP) is created under the Contract with the CSA.

2.2. BIP

If the Contractor intends to use Background Intellectual Property (BIP) to develop the FIP, the Contractor must complete Table 1 (Disclosure of BIP brought to the project by the Contractor) and forward it to the CSA Project Manager before the beginning of the Contract if any.

At the end of the Contract, the Contractor must review and update the BIP disclosure (Table 1) when applicable before closing of the Contract. Only the BIP elements that were used to develop the FIP elements should be listed.

2.3. FIP

At the end of the Contract, the Contractor must complete Table 2 (Disclosure of the FIP developed under the Contract).

If Canada is the owner of the FIP and identifies some FIP elements that would benefit from being patented by Canada, the Contractor must also complete Table 3 (Canada's Owned FIP Additional Information).

The Contractor must sign below and deliver the completed Contractor Disclosure of Intellectual Property to the CSA Project Manager of the Contract for his/her approval before closing the Contract.

3. GENERAL INSTRUCTIONS FOR BIP AND FIP TABLES

- Tables must be structured according to the CSA IP form provided.
- Each IP element must have a unique ID # in order to easily link the elements of the different tables.
- Titles of IP elements must be descriptive enough for project stakeholders to get a general idea of the nature of the IP.
- Numbers and complete titles of reference documents must be included.

4. INSTRUCTIONS TO THE PROJECT MANAGER

- The CSA Project Manager is responsible to review and approve Table 1 (Disclosure of BIP brought to the project by the Contractor) upon receipt.
- He/she also has to approve the Contractor Disclosure of Intellectual Property before closing the Contract and confirm his approval of the Disclosure by signing it below.
- He/she will then forward the Disclosure to the Intellectual Property Management and Technology Transfer (IPMTT) office: PITT-IPTT@asc-csa.gc.ca
- He/she can consult with the IPMTT office when needed.

For the Contractor _____ *Signature*	_____ *Date*
For the CSA Project Manager _____ *Signature*	_____ *Date*

TABLE 1 (DID-0014) – DISCLOSURE OF BACKGROUND INTELLECTUAL PROPERTY (BIP) BROUGHT TO THE PROJECT BY THE CONTRACTOR

1	2	3	4	5	6	7	8	9
BIP ID#	Project Element	Title of the BIP	Type of IP	Type of access to the BIP required to use/improve the FIP	Description of the BIP	Reference documentation	Origin of the BIP	Owner of the BIP
Provide ID # specific to each BIP element brought to the project e.g. BIP-CON-99 where CON is the contract acronym	*Describe the system or sub system in which BIP is integrated (e.g. camera, control unit, etc)*	*Use a title that is descriptive of the BIP element integrated to the work*	*Is the BIP in the form of an invention, trade secret, copyright, design?*	*Describe how the BIP will be available for Canada to use the FIP(e.g. BIP information will be incorporated in deliverable documents, software will be in object code, etc)*	*Describe briefly the nature of the BIP(e.g. mechanical design, algorithm, software, method, etc)*	*Provide the number and fill title of the reference documents where the BIP is fully described, The reference document must be available to Canada. Provide patent# for Canada if BIP is patented.*	*Describe circumstances of the creation of the BIP Was it developed from internal research or through a contract with Canada? If so, provide contract number.*	*Name the organization that owns the BIP. Provide the name of the subcontractor if not owned by the prime contractor.*

TABLE 2 (DID-0014) – DISCLOSURE OF THE FOREGROUND INTELLECTUAL PROPERTY (FIP) DEVELOPED UNDER THE CONTRACT

1	2	3	4	5	6	7	8	9
FIP ID #	Project Element	Title of FIP	Type of FIP	Description of the FIP	Reference documentation	BIP used to generate the FIP	Owner of the FIP	**Patentability**
Enter an ID # specific to each FIP element *e.g.FIP-CON-99* *where CON is the contract acronym*	*Describe the system or sub-system for which the FIP element was developed (e.g. a camera, ground control, etc)*	*Use a title that is descriptive of the FIP element.*	*Specify the form of the FIP e.g. invention, trade secret, copyright, industrial design*	*Specify the nature of the FIP e.g. software, design, algorithm, etc?*	*Provide the full title and number of the reference document where the FIP is fully described. The reference document must be available to Canada*	*BIP referenced in table 1 e.g. BIP-CON-2, 15*	*Specify which organization owns the FIP e.g. Contractor, Canada* or Subcontractor.* *Provide the name of the subcontractor if not owned by the prime contractor.* **If Canada is the owner of the FIP, complete Table 3 below* *Provide reference to contract clauses that support FIP ownership.* *Provide reference to WPDs under which the technical work has been performed.*	*In the case where the IP is owned by Canada, indicate with an "X", any IP elements described is patentable and complete Table 3 only for this IP.*

TABLE 3 (DID-0014) – CANADA'S OWNED FIP ADDITIONAL INFORMATION

1	2	3	4	5	6	7	8
FIP ID #	Title of FIP	Aspects of FIP that are novel, useful and non obvious	Limitations or drawback of the FIP	References in literature or patents pertaining to the FIP	Has the FIP been prototyped, tested or demonstrated? (e.g. analytically, simulation, hardware)? Provide results	Inventor(s)	Was the FIP disclosed to other parties?
ID# should be same as corresponding FIP element in Table2	*Title of FIP should be same as corresponding FIP element in Table2*	*How is the FIP addressing a problem (useful) and what is thought to be novel in this solution (novel)?*	*Describe the limitations of present apparatus, product or process*	*Provide references in published literature or patents relating to the problem or subject if any.*	*Describe briefly how the process, product or apparatus performed during testing or simulation. Provide reference document # where the performance is compiled if applicable.*	*Provide name and coordinates of the person(s) who created the FIP*	*Has any publication or disclosure of the FIP or any of its elements been made to third parties? If so, provide when, where and to whom.*

DID-0015 – Review Data Packages

PURPOSE:

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

PREPARATION INSTRUCTIONS:

Each Review Data Package must contain the documents identified in the Milestone column of the CDRL Table as due for that review, plus the presentations made at the meeting, the agenda, the minutes, and the AI list.

DID-0016 – Travel Report

PURPOSE:

The Travel Reports provide a record of the discussions, decisions and agreements reached during the meetings.

PREPARATION INSTRUCTIONS:

1. GENERIC FORMAT AND CONTENT

Must identify organization's name, contract number and title and document name.

- Travel date,
- Meeting attendees,
- Agenda,
- Objectives,
- Summary of the activities, discussions, decisions and agreements,
- Available presentation material must be annexed to the travel report.

The travel report must be submitted within 5 working days following the travel.

DID-0017 – Contract Plan and Report Form

PURPOSE:

The “Contract Plan and Report Form " will provide the basis for planning and estimating the cost of work, and reporting actual progress and cost against the plan during contract performance.

PREPARATION INSTRUCTIONS:

1. GENERIC FORMAT AND CONTENT

The contactor will use the form that best fits his contract. However, any equivalent form, which is acceptable to the Contracting Authority (e.g. PWGSC-TPSGC 9143), should be used to show the following:

a) Actual and forecast expenditure on a monthly basis for the period being covered (Expenditures are to be outlined by month and by task), and

b) Progress of the Work against the Contractor's original Contract Plan. Anticipated and/or actual start and end dates of major projects tasks, achievement dates for important milestones, and submittal dates for all key project deliverables must be presented.

DID-0019 – Technology Readiness with TRRA Worksheets and Rollup

PURPOSE:

Referring to AD-01, the Technology Readiness and Risk Assessment (TRRA) describes in a systematic and objective fashion the technological readiness of a system for a particular spaceflight mission or environment, the criticality of the constituent technologies, and the expected degree of difficulty to achieve the remaining technology development steps.

The TRRA provides for all the Critical Technology Elements (CTE) 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.

Agreement on the appropriate PBS level and identification of the CTE is required prior to the TRRA.

PREPARATION INSTRUCTIONS:

The Technology Readiness and Risk Assessment must be done in accordance with the CSA Technology Readiness and Risk Assessment Guidelines (AD-01) using the worksheet (AD-05) for each CTE and rollup using AD-06. A summary of the TRRA assessment and recommendations must be included in the technical report (CDRL 15).

DID-0020 – Technology Roadmap

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 applicable document AD-07.

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

ANNEX D

File No. **Sample**
Bidder/Contractor
Date

CONTRACT PLAN AND REPORT FORM

INSTRUCTIONS TO BIDDER/CONTRACTOR

This form serves 2 functions: Planning and estimating the cost of work; and, Reporting actual progress and cost against the plan during contract performance.

Plan
Your work and cost plan may be prepared on the attached "Contract Plan and Report Form" PWGSC-TPSGC 9143 and must be submitted as part of your proposal. The plan shall demonstrate how you propose to perform the contractual work by subdividing the work into tasks and providing an estimate of the cost for each task and a schedule for its completion.

This is an example of a completed form as of August 31, (shown with a heavy line).
Legend : = Original Estimate, = Completed Work, = Revised Estimate.

Reporting Progress
Following contract award, monthly progress reports which record actual start dates and projected completion dates by task, actual cost by task, actual cost by time period and Estimated to Complete (E.T.C.) by task are to be prepared and submitted in accordance with this sample. Progress reports must be completed to the satisfaction of the Contracting Authority before progress claims be be processed for payments.

Task Description	Task Duration												Task Cost		
	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Planned	Actual	E.T.C.
Design													5000	3000	1000
Material													3000	1200	1800
Fabrication													2000	-	2000
Assembly													3000	-	3000
Test													2000	-	2000
Planned Cost ($)	1000	1600	1600	2100	2100	1100	1500	1000	1000	1000	1000	1000	15000		
Actual Cost ($)	0	1000	1600	1600										4200	9800

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

Échantillon

N° du dossier
Entrepreneur
Date

FORMULAIRE DE PROJET DE CONTRAT ET DE RAPPORT

INSTRUCTIONS AUX SOUMISSIONNAIRES ENTREPRENEURS

Ce formulaire a un double but : elle sont premièrement à planifier et à évaluer le coût des travaux et, deuxièmement, à vérifier, tout au long de l'exécution du contrat, si les travaux et les coûts respectent le plan.

Plan
Les plans concernant les travaux et les coûts prévus peuvent être établis sur le « Formulaire de projet de contrat et de rapport PWGSC-TPSGC 9143-1 ci-joints et doivent être présentés comme faisant partie de votre proposition. Le plan doit faire état de al façon dont vous prévoyez mettre le contrat à exécution en divisant le travail en tâches et en donnant, pour chaque tâche, une estimation du coût et un calendrier d'exécution.

La présente est un exemple d'un formulaire rempli au 31 août (indiqué par une ligne épaisse).
Légende : = estimation original, = travaux terminés, = estimation révisée.

Rapport de situation
Lorsqu'un contrat est adjugé, il faut remplir un rapport de situation mensuel indiquant, par tâche, la date à laquelle celle-ci a été entreprise, la date prévue d'achèvement, le coût actuel, le coût actuel mensuel et l'estimation à venir et présenter ce rapport de la façon indiquée dans le présent échantillon. Le rapport de situation doit être jugé satisfaisant par l'autorité contractuelle avant les demandes d'acompte ne soient traitées.

Description de la tâche	Durée de la tâche												Coût de la tâche		
	Mai	Juin	Juillet	Août	Sept.	Oct.	Nov.	Dec.	Janv.	Fév..	Mars.	Avr.	Prévu à l'origine	Actuel-lement	À venir
Conception													5000	3000	1000
Matériel													3000	1200	1800
Fabrication													2000	-	2000
Assemblage													3000	-	3000
Vérification													2000	-	2000
Coût prévu ($)	1000	1600	1600	2100	2100	1100	1500	1000	1000	1000	1000	1000	15000		
Coût actuel ($)	0	1000	1600	1600										4200	9800

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

CONTRACT PLAN AND REPORT FORM
FORMULAIRE DE PROJET DE CONTRAT ET DE RAPPORT

File No. - N° du dossier
Bidder/Contractor - Entrepreneur
Date

INSTRUCTIONS TO BIDDER/CONTRACTOR - INSTRUCTIONS AUX SOUMISSIONNAIRES ENTREPRENEURS

This form serves 2 functions: Planning and estimating the cost of work; and, Reporting actual progress and cost against the plan during contract performance.

Ce formulaire a un double but : elle sont premièrement à planifier et à évaluer le coût des travaux et, deuxièmement, à vérifier, tout au long de l'exécution du contrat, si les travaux et les coûts respectent le plan.

Task Description **Description de la tâche**	**Task Duration - Durée de la tâche**												**Task Cost - Coût de la tâche**		
	May Mai	June Juin	July Juillet	Aug Août	Sept.	Oct.	Nov.	Dec. Déc.	Jan.	Feb. Fev.	Mar.	Apr. Avril	Planned Prévu à l'origine	Actual Actuel-lement	E.T.C. À venir
Planned Cost ($) - Coût prévu ($)															
Actual Cost ($) - Coût actuel ($)															

Canada

Annex E Technical bid and evaluation criteria

General Information

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

1. Title / Project Identification Page
2. Table of Contents;
3. Technical Criteria;
4. Managerial Criteria;
5. Bid Appendices.

The structure of the Technical and Managerial Bid, and its subsections, are described below. Some of the subsection headings are followed by numbers in brackets. These numbers represent the Evaluation Criteria that are applicable to that specific section/subsection for each bid submitted by a Bidder.

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. Technical Bid

The Bid should describe the proposed project as outlined in the following subsections.

1.1 Relevance Criteria

1.1.1 Relevance and Merit of the Concept (Evaluation Criterion 1)

This subsection should provide substantiated evidence describing the relevance and merit of the proposed concept relative to past, ongoing, and planned bidder activities. In doing so, this section should describe the degree of relevance that the Bidder's technology has with respect to the scope of work presented in the SOW and an understanding of the stated performance and functional requirements including explanations as to how the proposed solution would achieve the requirements. The relevance of the proposed technology will consider the components selected including their design, maturity levels, and space flight heritage.

International collaboration opportunities should be highlighted including mandatory collaboration with the ESA prime contractor (i.e. SRON, Netherlands) and the previous FTS design leader (i.e. TNO, Netherlands). Letters of intent for other potential collaboration partners should be provided with explanations given as to how they could help to reduce the overall cost to Canada.

It should be clearly demonstrated that the proposed concept addresses the requirements of the system as described in Appendix A to the SOW (AD-02 SRON-SAFARI-SP-2013-003).

1.1.2 Canadian Technology Strength and Space Flight Heritage (Evaluation Criterion 2)

The proposal should elaborate on the potential Canadian technology content of the proposed contribution. Canadian niche technologies and capabilities should be emphasized. The proposal should

assess the relative value of Canadian technology compared with the estimated total cost of the proposed contribution.

This section should also describe the bidder's previous space flight experience with a system providing similar capabilities. The Bidder should provide information about their past experience with closely related technology, substantiated by flight data analysis.

1.2 Technical Criteria

1.2.1 Understanding the Requirements and Technical Principles (Evaluation Criterion 3)

In this section, the Bidder should provide an overview of the technical methodology and its correlation with the main activities of the work-plan. The methodology outlined in this section should describe how the work would be conducted using analytical methods, procedures, techniques, industry standards, best practices, and the state-of-the-art for pertinent disciplines.

The Bidder should also elaborate on and substantiate the proposed methodology while referring to the main activities of the work-plan described in the body of the bid and appearing in the Work Breakdown Structure (WBS). The effectiveness of the methodology and its correlation to the work-plan should be explained and substantiated in this section.

The methodology and the corresponding work-plan should take into consideration the Technical Readiness and Risk Assessment. Concerning software, the Bidder should outline the software development environment and methodology already in place. The methodology to be employed should include any other relevant issue that could impede progress of the work-plan, for example, the availability of equipment, facilities, and infrastructure to support successful progress of the work.

This section should identify and substantiate in detail the underlying requirements and the technical principles and knowledge necessary to realize the proposed concept. It should thoroughly demonstrate an understanding of these requirements and principles. The proposal should include a presentation of proposed concept and operations requirements that will be addressed by the proposed activities and objectives, and their relationship to the overall objectives. A thorough review of the existing literature relevant to the central theme of the proposed concept should be provided.

1.2.2 Feasibility of Achieving Goals and Technical Objectives (Evaluation Criterion 4)

In this subsection, the Bidder should provide a description and overall feasibility assessment of the proposed approach and the degree to which it is capable of delivering the goals and technical objectives.

The proposed effort should be well presented and substantiated through well conceived and feasible concepts and methods to obtain the desired technical results. The bid should explain and substantiate that the overall scenario is valid and demonstrate that the proposed concept is based on well proven technology. Details on technology readiness are provided in The CSA Technology Readiness Levels and Assessment Guidelines (AD-01) and the Technology Readiness Levels Handbook for Space Applications (AD-04).

1.2.3 Scope of the Concept (Evaluation Criterion 5)

The section should address the scope and aspects of the proposed concept in relation to what is specified in the statement of work. It should provide a detailed description and substantiation of the approach for the concept development including a preliminary design of potential instruments and a description of the operation concept.

2. Managerial Bid

The Managerial Bid should demonstrate the effectiveness and commitment of the Bidder to deliver the project on time and within budget. Its sub-sections should address in detail: key-personnel qualifications, team organisation and arrangements, previous project experience, and the Management Plan.

2.1 Team Capability (Evaluation Criterion 6)

2.1.1 Team expertise

This subsection should identify the Project Manager and Technical Lead, and outline their respective qualifications. It should identify the key members of the project's technical and management teams and state their specific qualifications for the work required. Detailed résumés are to be included in an appendix in Section I of the Bid. Provisions for back-up personnel for key positions are to be stated.

2.1.2 Team Organization and Arrangements

This subsection should outline the roles and responsibilities of the proposed team members, and discuss and highlight the unique expertise that they offer with respect to the capability of the team. This subsection should also provide detailed roles and responsibilities of the key human resources. An organization chart should illustrate the structure of the proposed project team.

2.1.3 Previous Project Experience

The Bidder should identify any previous experience with projects of a similar scope as the one proposed, including any projects undertaken with the CSA or other institutions. The Bidder should list previous projects and assignments undertaken, within the last five years, which are relevant to the proposed scope of work. The Bidder should identify any team members in the current Bid that participated in those other projects and describe the nature of their contributions.

Note: The Bidder may describe as many previous projects as it feels are necessary to demonstrate the experience and qualifications of the company and of the proposed team, as long as the Bid length is not exceeded.

2.2 Project Management Plan (Evaluation Criterion 7)

This subsection describes the Management Plan that will be retained to deliver the project, and to do so in the most effective manner.

The Management Plan should contain, as a minimum, the following information: Work Breakdown Structure, WP definitions, personnel allocation, managerial risk assessment, milestones, deliverables, schedule, and project control system.

The Management Plan's presentation should be based on management tools most applicable to the proposed project, such as a scope planning (WBS), schedule development charts (e.g. Gantt chart, etc.). Equivalent company-developed, project-tailored tools / charts are also acceptable, provided that the information is complete.

2.2.1 Work Package Definition

This Management Plan subsection should define and specify the work to be executed according to the requirements of this SOW. The project should be broken down into Work Packages (WPs). Each WP should focus on specific activities that will form the total project and, as a minimum, should define and describe the specific work to be carried out and indicate: the person responsible, the WP's associated levels-of-effort and required resources, the schedule (start and finish dates), the risks, and the associated deliverables or outputs.

WPs stem from the WBS. The WBS should be taken to a low enough level and the associated WP should be defined in sufficient depth for the Bidder to demonstrate a clear understanding of the process to be followed to carry out the project. As a guideline, Table 1 of this attachment presents a sample Work Package Definition Sheet.

Table 1: Example of Work Package Definition Sheet

Project: Novel T/R Unit Demonstration			
Work Pack Title:			
	TEST SETUP **WBS Ref: 2200**		
			Sheet:
1 of 1			
			WP Estimated Value:
Do not indicate $ value in Section I of Bid, indicate value in Section II			
Scheduled Start:	T0 + 2 weeks	Accountable Manager:	Resource A
Scheduled End:	T0 + 12 weeks	Resources:	Resource A, Resource B, Resource C
Estimated Effort:	80 hours		

Objectives:

1. Deliver a functional test setup for the T/R unit

Inputs:

1. Test plan and procedure
2. Unit drawings
3. Unit Interface Control Documents

Tasks:

1. Review input documentation
2. Define requirements
3. Produce initial concept
4. Design test setup
5. Fabricate test setup
6. Commission and debug

Outputs and Deliverables:

1. Fully functional T/R unit test setup
2. Test setup log manual
3. Test setup user manual

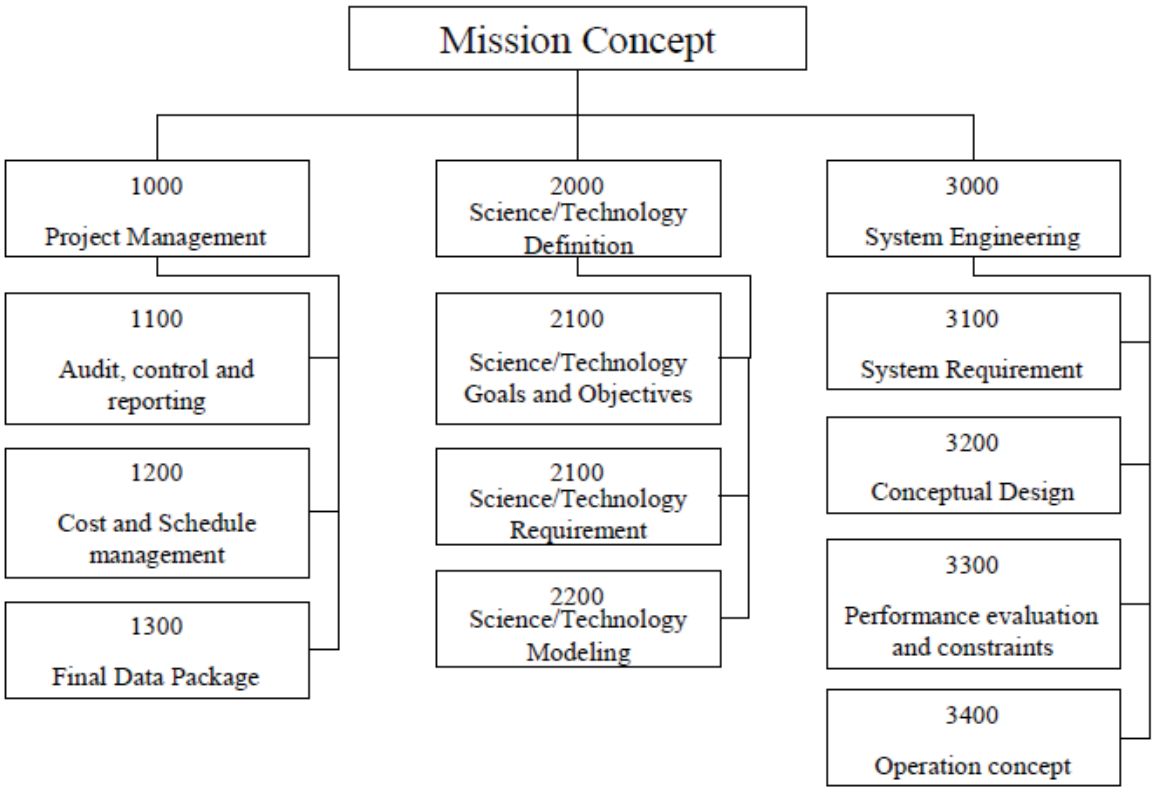

Figure 1: Example of a Work Breakdown Structure

2.2.2 Resources Allocation

This Management Plan subsection should include a resource assignment matrix showing the level-of-effort for each individual team member that has been apportioned to each WP. The matrix should identify each individual by name, and provide the estimated time (number of hours or days) required to complete each task. As a guideline, Table 2 of this attachment presents a sample of a Resource Allocation Matrix (RAM). The RAM should be presented in the Managerial Bid.

Table 2: Example of Resource Allocation Matrix

WBS number	Work Pack Title	*Resource A*		*Resource B*		*Resource C*		Total
1.1	Project Management	A 200		P 25		P 25		250
1.2	Literature Survey	A	25	P	100	-	0	125
1.3	Requirements	P	50	A	100	P	100	250
1.4	Design	P	100	A	100	P	150	350
1.5	Build	-	0	P	200	A	150	350
1.6	Test and Analysis	A	100	P	200	P	200	500
	Total		475		725		625	1825

P: Participant
A: Accountable

2.2.3 Managerial Risk Assessment

This Management Plan subsection should provide an assessment of the managerial risks involved in performing the work for the concept study, and identify critical issues that may jeopardize successful completion of the project within cost and schedule constraints.

2.2.4 Milestones and Deliverables

Milestones and deliverables should be detailed in accordance with what is specified in the Statement of Work.

2.2.5 Schedule

This Management Plan subsection should relate tasks, milestones and deliverables to a project timetable. For planning purposes, the project expected start date is 31 January 2014.

2.2.6 Project Control System

This Management Plan subsection should outline the methods and systems to be used to control tasks, schedules, and costs for the project. Any project management tool or a spreadsheet software package may be used as long as it contains, as a minimum, the information required in the Monthly Progress Report (DID-0003). Additionally, the Project Control System should provide the capability to report the amount of work per WBS item for each individual on a monthly basis.

3. Bid Appendices
The following items should be addressed in individual appendices as part of the Bids.

3.1 Required Bid Appendices

1) List of acronyms used in the Bid
2) Bidder's Criteria Substantiation (this annex, Section 4.2).
3) Résumés: The Bid should include résumés (and/or NSERC form 100) of all key resources proposed and these should be appended to Section I.
4) List of Contacts: The list of contacts should be appended to Section I, in a format suitable for distribution and should include all of the Bidder's points-of-contact involved in the Bid development and/or contract negotiations. The following example format should be used:

Table 3: Sample List of Contacts

Role	Name	Telephone	Fax	E-mail
Project Manager				
Project Engineers/ Principal Investigator				
Contracting Authority				
Claims officer				
Communications (for press release)				
Etc.				

3.2 Applicable Bid Appendices

The following Bid appendices are to be provided, *if applicable,* with Section I:
1) Corporate literature: Only literature that is relevant and will be useful to support the Bid.
2) Relevant technical and/or scientific papers published by team members.
3) Any other Bid appendices deemed appropriate by the Bidder.

Bidders are reminded that the Bid should not exceed ?? pages.

4. POINT RATED CRITERIA

4.1 Relevance / Technical / Management Point Rated Criteria

The Bidder should achieve the minimum score requirements as indicated in Table 4: “List of Evaluation Criteria and Associated Ratings”. Bids will be evaluated according to the point-rated criteria as specified in Table 4 and at subsection 4.3 of this document: “Evaluation Criteria and Benchmark Statements”. The criteria are grouped under the following divisions:

1) Relevance;
2) Technical; and
3) Management.

“Evaluation Criteria and Benchmark Statements” contains a series of evaluation criteria, each supported by a set of benchmark statements (0, A, B, C, D). Each of these statements has a corresponding value:

0 = 0% of the maximum point rating
A = 25% of maximum point rating
B = 50% of maximum point rating
C = 75% of maximum point rating
D = 100% of maximum point rating

As an example, the maximum point rating for the “*Understanding the Requirements and Technical Principles”* criterion is 20 points. If a Bid receives a “C” for this criterion in the evaluation process, the score attributed will be:

75% of 20 points = 15 points (score)

<u>Table 4 identifies:</u>

1) The maximum point rating assigned to each criterion;
2) The maximum point rating possible for each division (Relevance, Technical, and Management);
3) The maximum point rating possible for the overall score;
4) The minimum point rating required for the overall score.

Note that the first criterion "Merit of the Concept" has a minimum score requirement of 15 to ensure that the bidder addresses the scope of work presented in the Statement of Work.

Table 4: List of Evaluation Criteria and Associated Ratings

Evaluation Criteria and Ratings	
	Ratings
Relevance Criteria	
1. Relevance and Merit of the Concept **(Minimum Score Requirement of 15)**	20
2. Canadian Technology Strength & Space Flight Heritage	10
Maximum Score	***30***
Technical Criteria	
3. Understanding the Requirements and Technical Principles	20
4. Feasibility of Achieving Goals and Technical Objectives	15
5. Scope of the Concept	15
Maximum Score	***50***
Management Criteria	
6. Team Capability	10
7. Project Management Plan	10
Maximum Score	***20***
Maximum Overall Score	***100***
Minimum Overall Score Requirement	***70***

4.2 Bidder's Criteria Substantiation

The Bidder is requested to provide their own substantiation, which should be submitted as an appendix to their Section I.

The substantiation should be concise yet sufficiently complete to give the evaluators a good overall appreciation of the bid's merit relative to each criterion. Cross-references to appropriate sections of the bid should be provided and the essence of the referenced information should be summarized in the substantiation.

For convenience, a template for the Self-Evaluation Table is provided in Table . Enter each technical / management / impact criterion section number, and the substantiation. Approximately half a page should be sufficient to make the Bidder's case for the rating assigned in the substantiation column.

Table 5: Bidder's Criteria Substantiation.

Company: **Project Title:**.	
Criteria **Substantiation**	
*Ex.: **1*** *(criterion number)*	*Criterion substantiation and Bidder's bid cross-reference.* *Approximately300 words should be sufficient to make the case.*

4.3 EVALUATION CRITERIA AND BENCHMARK STATEMENTS

RELEVANCE CRITERIA

1. RELEVANCE AND MERIT OF THE CONCEPT

This criterion evaluates the relevance and merit of the proposed concept relative to the scope of work presented in the SOW. **Furthermore, this criterion assesses the degree to which the bid shows technical compliance to the proposed technology. A minimum of 15 points are required for the bid to be considered.**

0)

- The relevance and merit of proposed concept is not addressed.

A) Poor

- The relevance and merit of the proposed concept are only partially addressed and not substantiated; OR
- Addresses the technology but does not show an understanding of the driving needs nor does it demonstrate how the proposed technology will contribute to meeting the stated requirements.

B) Average

- The relevance and merit of the proposed concept are addressed and substantiated, but gaps exit; AND
- The bidder demonstrates a capacity to meet some requirements, without a credible plan.

C) Good

- The relevance and merit of the proposed concept are addressed and substantiated and no gap exists; AND
- The bidder demonstrates a capacity to meet all of the requirements, substantiated by a credible plan to achieve all requirements; AND

- The proposed technology is based on a design proven in space.

D) Excellent

- The relevance and merit of the proposed concept are addressed in detail and well substantiated and no gap exists; AND
- The bidder demonstrates a capacity to meet all of the requirements, substantiated by a credible plan to achieve all requirements; AND
- The proposed technology includes components proven in space.

2. CANADIAN TECHNOLOGY STRENGTH & SPACE FLIGHT HERITAGE

This criterion evaluates the proportion of Canadian technology or know-how and its criticality to the success of the project including the identification of critical design components and an assessment compatibility, maturity level, and space heritage.

0)

- The key technology and expertise relevant to the proposed concept resides outside Canada; OR
- It is unlikely that Canadian technology strength will be developed.

A) Poor

- Some key technology and expertise for the proposed concept reside within Canadian industry or academia. OR
- Canadian technology strength is not identified or it is not convincing that technology strength will be developed for Canada; OR
- The selected components lack justification regarding compatibility, maturity levels, and space heritage.

B) Average

- The proposal identifies some of the critical design components, outlines their technical specification, and demonstrates compatibility, but with limitations in the proposed design; OR
- The proposal demonstrates that some key technology and expertise for the proposed concept reside within Canadian industry or academia; OR
- The choice of most selected components is justified by their compatibility, maturity levels, and space heritage; OR
- Canadian technology strength is identified, but it is not significant.

C) Good

- The proposal identifies the critical design components, outlines their technical specifications, and demonstrates compatibility with the proposed design; AND
- The choice of some components is partly justified by their compatibility, maturity levels, and space heritage; AND
- The proposal demonstrates that the majority of key technology and expertise in the bid reside within Canadian industry or academia; AND
- Either Canadian technology strength is identified and substantiated, but it is not significant; or Canadian technology strength is identified and is significant but it is not fully substantiated.

D) Excellent

- The proposal identifies critical design components, outlines their technical specification and demonstrates compatibility with the proposed design; AND

- The choice of selected critical components is well justified by their compatibility, maturity levels, and space heritage; AND
- The proposal demonstrates that the majority of key technology and expertise in the bid are within Canadian industries or academia; AND
- Significant Canadian technology strength is identified and substantiated.

<u>TECHNICAL CRITERIA</u>

3. UNDERSTANDING THE REQUIREMENTS AND TECHNICAL PRINCIPLES

This criterion assesses the degree to which the Bid identifies and substantiates in detail the underlying requirements and technical principles and also to what extent it thoroughly demonstrates an understanding of these requirements and principles as stated in Annex A – Statement of Work

0)

- The bid does not address the requirements, OR
- Does not identify the technical principles driving the proposed concept.

A) Poor

- The proposal includes an incomplete overview of the main requirements; OR
- The proposal demonstrates incomplete knowledge of the technical principles relevant to the goal of the study; OR
- The bid does not identify how the objectives will help in further defining these requirements; OR
- The proposal does not include an adequate review of the existing literature or that of previous relevant technology.

B) Average

- The proposal includes only an overview of the main requirements; AND
- The proposal exhibits a general understanding of the requirements and principles; AND
- The proposal includes a cursory review of and references to existing literature or that of previous work relevant to the central theme of the proposed concept.

C) Good

- The proposal identifies and demonstrates understanding of the main requirements; AND
- The proposal demonstrates knowledge of the technical principles relevant to the goal of the study; AND
- The bid includes a presentation of the proposed concept and operations requirements that will be addressed by the proposed activities and objectives; AND
- The proposal includes references to and a discussion of other work or previous activities relevant to the central theme of the proposed concept.

D) Excellent

- The proposal includes an exhaustive identification and understanding of the requirements; AND
- The proposal demonstrates a comprehensive knowledge of the technical principles relevant to the goal of the study; AND
- The bid includes a presentation of proposed concept and operations requirements that will be addressed by the proposed activities and objectives, and their relationship to overall objectives; AND
- The proposal includes references to and a thorough discussion of existing literature relevant to the central theme of the proposed concept.

4. FEASIBILITY OF ACHIEVING GOALS AND TECHNICAL OBJECTIVES

The criterion assesses the description and overall feasibility of the proposed approach and the degree to which it is capable of delivering the goals and technical objectives. This includes the compatibility of the technology selected and incorporation into the proposed design for addressing the technical requirements and enhancements. This criterion evaluates the technical risks associated with the eventual integration and implementation of the concept. It assesses if the proposed effort is well documented and substantiated.

0)

- The feasibility of achieving the goals and technical objectives is not demonstrated

A) Poor

- The proposal does not present an adequate case with system(s) that can deliver the technical objectives; OR
- The proposed concept can obtain the desired technical results, but gaps exist.; OR
- Main elements of a preliminary technology development road map are lacking to meet the basic technical requirements.

B) Average

- The proposal presents an adequate case with system(s) that can deliver the technical objectives; AND
- The proposed concept can obtain the desired technical results, but some important details or information are omitted; AND
- Some elements of a preliminary technology development road map are lacking, in order to meet the basic technical requirements.

C) Good

- The proposal presents a well-referenced case with system(s) that can deliver the technical objectives; AND
- The proposed concept displays creative, feasible and valid concepts and methods that can obtain the desired technical results with details; AND
- Main elements of a preliminary technology development road map are presented in order to meet the technical basic requirements and enhancements of the study.

D) Excellent

- The proposal presents a well-referenced and convincing case with system(s) that can undoubtedly deliver the technical objectives. AND
- The proposed concept relies on well proven technology with one or more components having space flight heritage and is substantiated with ample details; AND
- A preliminary technology development roadmap is presented in order to meet the technical basic requirements and enhancements of the study.

5. SCOPE OF THE CONCEPT

The criterion assesses the description and overall scope of the proposed Concept Study.

0)

- The bid does not address the scope and the aspects of what is requested in the SOW; OR
- Bid does not provide a description of the approach for the concept development.

A) Poor

- The bid addresses the scope and the aspects of what is requested in the SOW, but gaps exist; OR
- It does not provide a description of the approach for the concept development.

B) Average

- The bid addresses the scope and the aspects of what is requested in the SOW with no gaps; AND
- It provides a description of the approach for the concept development, but either gaps exit or they are not relevant.

C) Good

- The bid addresses the full scope and aspects of what is requested in the SOW; AND
- It provides a description and substantiation of a relevant approach for the concept development.

D) Excellent

- The bid addresses the full scope and aspects of what is requested in the SOW; AND
- It provides a detailed description and substantiation of a relevant approach for the concept development; AND
- The bid achieves the preliminary design of the proposed concept and describes the operation concept.

<u>MANAGEMENT CRITERIA</u>

6. TEAM CAPABILTY

This criterion assesses the capability (education, knowledge, experience, expertise and completeness of skill-sets in science, engineering and management) of the personnel assembled to carry out the proposal.

0)

- The proposed team does not have the required expertise; OR
- The proposal does not address this criterion.

A)

- The proposed team has no experience in conducting work similar in complexity and scope to what is requested in the SOW; OR
- The proposed team lacks expertise and may not be capable of fulfilling the statement of work (SOW); OR
- The roles and responsibilities of the team members are not defined.

B)

- The key personnel identified in the proposed team have been involved in at least one project similar in complexity and scope to what is requested in the SOW; AND
- The proposed team is lacking some expertise but demonstrates that it is capable of fulfilling the statement of work (SOW); AND
- The team may have deficiencies in the completeness of the skills of its members; AND
- Some team members have experience in the design and development of space flight hardware in a similar environment as described in the relevant SOW or space software.

C)

- The key personnel identified in the proposed team have been involved in at least two projects similar in complexity and scope to what is requested in the SOW; AND
- The expertise of the proposed team demonstrates that it is highly capable of fulfilling the statement of work (SOW); AND
- The completeness of the team is very well demonstrated through the complementarities of skills of its members and by the roles / tasks that they are assigned during the concept study; AND
- The roles and responsibilities for most of the team members, including sub-contractors, are defined; AND
- Most of the required key personnel are identified and there are qualified back-up personnel identified for most of them; AND
- The key personnel have experience in the design and development of space flight hardware in a similar environment as described in the relevant SOW or space software.

D)

- The key personnel identified in the proposed team has been involved in more than two projects similar in complexity and scope to what is requested in the SOW; AND
- The expertise of the proposed team demonstrates that it is highly capable of fulfilling the statement of work (SOW) with the potential of delivering an authoritative concept; AND
- The roles and responsibilities of all the team members, including all sub-contractors, are defined; AND
- The completeness of the team is very well demonstrated through the complementarities of skills of its members and by the roles / tasks that they are assigned during the concept study; AND
- All required key personnel are identified and there are qualified back-up personnel identified for all of them; AND
- The key personnel have significant experience in the design and development of space flight hardware in a similar environment as described in the relevant SOW and space software.

7. PROJECT MANAGEMENT PLAN

This criterion assesses the completeness of the management plan (including WBS, WPs, personnel allocation, detailed schedule and milestones, and managerial risk assessment) and evaluates the effectiveness of the described methodology in successfully achieving the stated objectives of the work to carry out this study.

0)

- The work-plan does not follow methodological approach and is unlikely to obtain the appropriate objectives; OR
- The proposal does not address this criterion.

A)

- The proposal presents a poor work-plan; OR
- The proposed methodology is not effective in achieving the objectives of the work; OR
- There is a lack of correlation between the work-plan and the management method; OR
- Risks are not identified.

B)

- The proposal presents a basic work-plan; AND
- The proposed methodology is effective in achieving the objectives of the work; OR
- There is a lack of correlation between the work-plan and the management method; OR
- Risks are identified and mitigation strategies are insufficient.

C)

- The work-plan as described in the proposal is based on a methodological approach; AND
- The effectiveness of the proposed methodology in achieving the objectives of the work is credible; AND
- The correlation between the work-plan and the management method exists; AND
- Risks are identified and mitigation strategies are discussed.

D)

- The work-plan as described in the proposal follows a clearly defined methodology; AND
- The effectiveness of the proposed methodology in achieving the objectives of the work is highly credible; AND
- The correlation between the work-plan and the management method is clear; AND
- Comprehensive risk analysis and mitigation strategies are provided.