

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Bid Receiving Public Works and Government
Services Canada/Réception des soumissions
Travaux publics et Services gouvernementaux
Canada
Pacific Region
401 - 1230 Government Street
Victoria, B.C.
V8W 3X4
Bid Fax: (250) 363-3344

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 PHASE ARRAY FEED STUDY	
Solicitation No. - N° de l'invitation 31034-145074/A	Date 2014-07-04
Client Reference No. - N° de référence du client 31034-145074	
GETS Reference No. - N° de référence de SEAG PW-\$VIC-211-6507	
File No. - N° de dossier VIC-4-37044 (211)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2014-07-23	Time Zone Fuseau horaire Pacific Daylight Saving Time PDT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Park, Isabell	Buyer Id - Id de l'acheteur vic211
Telephone No. - N° de téléphone (250) 363-3981 ()	FAX No. - N° de FAX (250) 363-3344
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Specified Herein Précisé dans les présentes	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

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

Issuing Office - Bureau de distribution

Public Works and Government Services Canada - Pacific
Region
401 - 1230 Government Street
Victoria, B. C.
V8W 3X4

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

Solicitation No. - N° de l'invitation

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Amd. No. - N° de la modif.

File No. - N° du dossier

VIC-4-37044

Buyer ID - Id de l'acheteur

vic211

CCC No./N° CCC - FMS No/ N° VME

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PART 1 - GENERAL INFORMATION

1. Introduction

The bid solicitation document is divided into six parts plus attachments and annexes as follows:

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

The Annexes include the Statement of Work and the Basis of Payment.

2. Summary

NRC requires research and development services in support of the international Square Kilometer Array (SKA). The SKA will be used by astronomers to make high-sensitivity wide-band and wide-field surveys of the radio sky. A candidate technology to provide these expanded capabilities is to place high-sensitivity Phased-Array Feeds (PAF) at the focal plane of reflector antennas. NRC has developed a prototype PAF and requires the services of a Contractor to provide design assessment and optimization for volume manufacturing and reduced cost.

NRC is responsible for the overall feed design and performance.

The Contractor is responsible for assessing the discrete antenna element physical design and receiver front-end interconnect and integration to the antenna element. The Contractor's scope includes an overall assessment of the existing design and the development and definition of conceptual designs including optimization in terms of manufacturability (including test), cost and performance based on mutually defined requirements.

The Nature and scope of the work will require regular meetings and iterations with NRC.

Contractors bidding on his requirement must meet the required delivery dates as these are essential towards Canada meeting its deliverables towards the set timelines of the SKA project office.

It is NRC's Intent that 2 contracts for the same study will be awarded to two separate bidders, (each to not exceed CAD \$ 60,000) with the expectation that the outcome will provide NRC with 2 solutions.

Bidders must provide a list of names, or other related information as needed, pursuant to section 01 of Standard Instructions 2003.

For services requirements, Bidders in receipt of a pension or a lump sum payment must provide the required information as detailed in article 3 of Part 2 of the bid solicitation.

The requirement is limited to Canadian goods and/or services.

3. Not Used

4. 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 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

5. Communications

As a courtesy and in order to coordinate any public announcements pertaining to this contract, the Government of Canada requests that successful Bidders notify the Contracting Authority 5 days in advance of their intention to make public an announcement related to the recommendation of a contract award, or any information related to the contract. The Government of Canada retains the right to make primary contract announcements.

6. Conflict of Interest

The Work described herein and the deliverable items under any resulting Contract specifically exclude the development of any statement of work, evaluation criteria or any document related to a bid solicitation. The Contractor, its subcontractor(s) or any of their agent(s) directly or indirectly involved in the performance of the Work and/or in the production of the deliverables under any resulting Contract will not be precluded from bidding on any potential future bid solicitation related to the production or exploitation of any concept or prototype developed or delivered under any resulting Contract.

PART 2 - BIDDER INSTRUCTIONS

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 (2014-03-01) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2. Submission of Bids

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

3. Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPS, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

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

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

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

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

Former Public Servant in Receipt of a Pension

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

If so, the Bidder must provide the following information, for all 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.

4. Communications - Solicitation Period

All enquiries must be submitted to the Contracting Authority no later than 5 calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a "proprietary" nature must be clearly marked "proprietary" at each relevant item. Items identified as proprietary will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated and the enquiry can be answered to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

5. Applicable Laws

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

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.

6. Improvement of Requirement During Solicitation Period

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least 5 days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

7. Basis for Canada's Ownership of Intellectual Property

The National Research Council has determined that any intellectual property rights arising from the performance of the Work under the resulting contract will belong to Canada, on the following grounds:

- purpose of the contract, or of the deliverables contracted for, is to augment an existing body of Canada's background information as a prerequisite to the transfer of the augmented background to the private sector, through licensing or assignment of ownership (not necessarily to the original contractor), for the purposes of commercial exploitation.

8. Maximum Funding

The maximum funding available for the contract resulting from the bid solicitation is \$60,000.00 (Applicable Taxes extra, as appropriate). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

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

- Section I : Technical Bid (1hard copies)
- Section II : Financial Bid (1 hard copies)
- Section III : Certifications (1 hard copies)

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

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

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

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

- (1) use 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, print double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I : Technical Bid

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

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

Section II : Financial Bid

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

- (a) A Total Cost to a Ceiling Price, which must not exceed the maximum funding specified in Part 2. The total amount of Applicable Taxes are to be shown separately, if applicable. The information must be provided in accordance with the Basis of Payment in Annex B.
- (b) For Canadian-based bidders, prices must be in Canadian funds, Applicable Taxes excluded and Canadian customs duties and excise taxes included.

For the purpose of the bid solicitation, bidders with an address in Canada are considered Canadian-based bidders and bidders with an address outside of Canada are considered foreign-based bidders.

Section III : Certifications

Bidders must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

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

1.1 Technical Evaluation

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

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

The technical bid consists of the following:

All the information required to demonstrate its conformity with the Point Rated Technical Criteria described in Attachment A.

The solicitation package contains electronic documents that are essential for bidders to understand the technical nature of the work and must be requested from the PWGSC Contracting Authority in writing.

1.1.1 Supporting Information

In the event that the Bidder fails to submit any supporting information pursuant to technical evaluation criteria, the Contracting Authority may request it thereafter in writing, including after the closing date of the bid solicitation. It is mandatory that the Bidder provide the supporting information within three (3) business days of the written request or within such period as specified or agreed to by the Contracting Authority in the written notice to the Bidder.

1.1.2 Mandatory and Point Rated Technical Evaluation

Mandatory and Point Rated Technical Evaluation Criteria are included in Attachment A.

1.2 Financial Evaluation

1.2.1 Mandatory Financial Criteria

Proposal which exceed CAD \$60,000 will be deemed non-responsive.

1.2.2 Evaluation of Price

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

2. Basis of Selection

2.1 Basis of Selection - Highest Rated Within Budget

To be declared responsive, a bid must:

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

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- (b) meet all mandatory technical evaluation criteria;
- (c) obtain the required minimum points for each criterion with a pass mark; and
- (d) obtain the required minimum points overall for the technical evaluation criteria which are subject to point rating.

Bids not meeting (a) or (b) or (c) or (d) will be declared non responsive. 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. In the event that the highest number of points is obtained by more than one responsive bid, the responsive bid with the lowest evaluated price will be recommended for award of a contract.

Two highest ranked bidders shall be recommended for award.

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 made knowingly or unknowingly, during the bid evaluation period or during the contract period.

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

1. Certifications Required Precedent to Contract Award

1.1 Integrity Provisions – Associated Information

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

1.2 Federal Contractors Program for Employment Equity - Bid Certification

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

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

2. Additional Certifications Required Precedent to Contract Award

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

PART 6 - RESULTING CONTRACT CLAUSES

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

1. Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex A.

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.

2.1 General Conditions

2035 (2014-03-01), General Conditions - Higher Complexity - Services, apply to and form part of the Contract.

2.2 Supplemental General Conditions

The following supplemental general conditions apply to and form part of the Contract:

4007 (2010-08-16), Canada to Own Intellectual Property Rights in Foreground Information

3. Security Requirement

There is no security requirement applicable to this Contract.

4. Term of Contract

4.1 Period of Contract

The period of the Contract is from date of Contract to 31 March 2015, inclusive.

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Ji-Yon Isabell Park
Title: Supply Specialist
Public Works and Government Services Canada
Acquisitions Branch
Telephone: 250-363-0395
E-mail address: ji-yonisabell.park@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.

5.2 Technical Authority

The Technical Authority for the Contract is: _____

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

5.3 Contractor's Representative

Name:
Title:
Company:
Address:
Telephone:
Facsimiles:
E-mail address:
Mobile:

5.4 Procurement Authority

The Procurement Authority for the Contract is: _____

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

6. Proactive Disclosure of Contracts with Former Public Servants

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

7. Payment

7.1 Basis of Payment

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work, plus a profit as determined in accordance with the Basis of Payment in Annex B, to a ceiling price of \$_____ (**insert the amount at contract award**) . Customs duties are included and Applicable Taxes are extra.

The ceiling price is subject to downward adjustment so as not to exceed the actual costs reasonably incurred in the performance of the Work and computed in accordance with the Basis of Payment.

7.2 Limitation of Price

SACC Manual Clause C6000C (2011-05-16), Limitation of Price

7.3 Method of Payment

7.3.1 Milestone Payments

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

- (a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111 (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf>), Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;

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

7.3.2 Schedule of Milestones

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

No.	Deliverable	Firm Amount	Delivery Date
1	Interim Progress report		Est. 8 weeks following award of Contract
2	Final report		Est. 16 weeks following award of Contract

7.3.3 SACC Manual Clause H1001C (2008-05-12), Multiple Payments

7.4 SACC Manual Clauses

A9117C (2007-11-30), T1204 - Direct Request by Customer Department
H4500C (2010-01-11), Lien - Section 427 of the *Bank Act*

8. Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

Each invoice must be supported by:

- (a) a copy of time sheets to support the time claimed;
- (b) a copy of the invoices, receipts, vouchers for all direct expenses, and all travel and living expenses.

2. Invoices must be distributed as follows:

- (a) One (1) copy must be submitted in an electronic format to the Procurement Authority identified under the section entitled "Authorities" of the Contract for certification and payment. Microsoft Word, Adobe Reader (.pdf) formats are acceptable.
- (b) One (1) copy must be submitted in an electronic format to the Contracting Authority identified under the section entitled "Authorities" of the Contract. Microsoft Word, Adobe Reader (.pdf) formats are acceptable.

9. Certifications

9.1 Compliance

Compliance with the certifications and related documentation 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, provide the related documentation or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

9.2 SACC Manual Clauses

A3060C (2008-05-12), Canadian Content Certification

10. Applicable Laws

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

11. Priority of Documents

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

- (a) the Articles of Agreement;
- (b) the supplemental general conditions 4007 (2010-08-16), Canada to Own Intellectual Property Rights in Foreground Information;
- (c) the general conditions 2035 (2014-03-01), General Conditions - Higher Complexity - Services;
- (d) Annex A, Statement of Work;
- (e) Annex B, Basis of Payment;
- (f) the Contractor's bid dated _____ (insert date of bid) (If the bid was clarified or amended, insert at the time of contract award: "as clarified on _____" **or** ", as amended on _____" and insert date(s) of clarification(s) or amendment(s))

12. Insurance

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

ATTACHMENT A**MANDATORY AND POINT RATED TECHNICAL CRITERIA****1. Mandatory Technical Criteria**

At bid closing time, the Bidder must comply with the following mandatory technical criteria and provide the necessary documentation to support compliance. Any bid which fails to meet the following mandatory technical criteria will be declared non-responsive. Each criterion should be addressed separately.

- (a) Bidders must submit a firm all-inclusive hourly rate for each category of resources proposed, for the contract period.
- (b) The information must be provided in accordance with the Basis of Payment in Annex B.
- (c) Proposal must not exceed the maximum budget limit of CAD \$60,000.00 (GST Extra)

2. Point Rated Technical Criteria

Note: Max = maximum number of points; Min = mandatory passing mark

Point rated technical criteria	Max	Min
1. Technical Proposal		
<p>1.1 Understanding of the 'Statement of Work' The bidder should demonstrate its understanding of the 'Statement of Work' by providing in its own words a convincing demonstration of its understanding of the context, scope and objectives of the resulting contract. The demonstrated understanding of the context, scope and objectives should be complete and should not be limited to the description of the statement of work.</p> <p>The understanding of the three elements (context, scope and objectives) will be evaluated independently. The score given will be the average of the individual scores for the three elements.</p> <p>Points: Max 10 points for context Max 10 points for scope Max 10 points for objectives Total 30 points / with overall pass mark of 20 points</p> <p>Points will be awarded on the following basis: 0 pts = Lacks complete or almost complete understanding of the requirements.</p> <p>2 pts = demonstrates a good understanding of the requirements and weaknesses can be easily corrected.</p> <p>7 pts = demonstrates a very good understanding of the requirements and should ensure effective results.</p> <p>10 pts = demonstrates expert understanding of the requirements and should ensure superior results.</p>	30	20
<p>1.2 Experience of the bidder's resources This criterion assesses the combined technical capability and experience of the team assembled to carry out the Work.</p>	30	22

<p>For the proposed resources, The bidders proposal should include the CV (s) of up to 2 primary persons (i.e. project manager, engineer) proposed to carry out the work, described in the (SOW) Statement of Work which clearly demonstrates the relevant education and experience. Points will be awarded for the overall experience and capability of the technical team proposed.</p> <p>The bidder should also support the experience by presenting brief overview of at least 2 projects in which the proposed resources acquired their experience.</p> <p>For each project described, the bidder should at least include the following information: the title, the objectives, the scope, the project periods (month and year of the beginning and month and year of the end), the involvement and the role of the proposed resource in the project, the tasks performed by the proposed resource and any other relevant information.</p> <p>To be awarded points for this section the proposed persons/resource(s) within the team, must have at least one individual with a minimum of a Master’s degree in the following: antenna engineering or electrical engineering or engineering physics.</p> <p>Points: 0 pts = Has not demonstrated capability and experience with closely related technologies</p> <p>8 pts = Has demonstrated limited capability and experience with closely related technologies</p> <p>15 pts = Has demonstrated some capability and experience with closely related technologies but key capabilities are missing to form a comprehensive team.</p> <p>22 pts = Has worked actively with closely related technologies of comparable scope and complexity. The proposed team possesses all the capabilities and experience required to perform the Work.</p> <p>30 pts = Is highly experienced in developing closely related technologies and in the related engineering development of similar technology of comparable scope and complexity. The proposed team possesses all the capabilities required to perform the Work.</p> <p>Total 30 points for the overall team / with overall pass mark of 22 points</p>		
<p>3. Technical Methodology and Work plan. The bidder should demonstrate the methodology in resolving the technical challenges, in attaining the stated technical objectives of the Work, and in meeting requirements of the Statement of Work (SOW) described in ANNEX A.</p> <p>Points: 0 pts = Did not submit information which could be evaluated or inadequate information submitted.</p> <p>15 pts = Demonstrates a good understanding of the methodology and work plan requirements. Satisfactory capability, should ensure effective results.</p>	<p>40</p>	<p>15</p>

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<p>25 pts = Demonstrates a very good understanding of the methodology and work plan requirements. Very satisfactory capability, should ensure very effective results.</p> <p>40 pts = Demonstrates expert understanding of the methodology and work plan requirements. Superior capability, should ensure superior results</p> <p>Total 40 points for the overall work plan / with overall pass mark of 15 point</p>		
<p>Total Points 100</p>		

ATTACHMENT B

ADDITIONAL CERTIFICATIONS PRECEDENT TO CONTRACT AWARD

1. Canadian Content Certification

This procurement is limited to Canadian services.

The Bidder certifies that:

() the service(s) offered is(are) a Canadian service as defined in paragraph 2 of clause A3050T.

1.1 Canadian Content Definition

1. **Canadian good:** A good wholly manufactured or originating in Canada is considered a Canadian good. A product containing imported components may also be considered Canadian for the purpose of this policy when it has undergone sufficient change in Canada, in a manner that satisfies the definition specified under the North American Free Trade Agreement (NAFTA) Rules of Origin. For the purposes of this determination, the reference in the NAFTA Rules of Origin to "territory", is to be replaced with "Canada". (Consult Annex 3.6(9) of the Supply Manual.) For photocopiers, computers and office equipment within Federal Supply Classification (FSC) groups 36, 70 and 74, see paragraph 6.(a)).
2. **Canadian service:** A service provided by an individual based in Canada is considered a Canadian service. Where a requirement consists of only one service, which is being provided by more than one individual, the service will be considered Canadian if a minimum of 80 percent of the total bid price for the service is provided by individuals based in Canada.
3. **Variety of goods:** When requirements consist of more than one good, one of the two methods below is applied:
 - a. aggregate evaluation: no less than 80 percent of the total bid price must consist of Canadian goods; or,
 - b. item by item evaluation: in some cases, the bid evaluation may be conducted on an item-by-item basis and contracts may be awarded to more than one supplier. In these cases, suppliers will be asked to identify separately each item that meets the definition of Canadian goods.
4. **Variety of services:** For requirements consisting of more than one service, a minimum of 80 percent of the total bid price must be provided by individuals based in Canada.
5. **Mix of goods and services:** When requirements consist of a mix of goods and services, no less than 80 percent of the total bid price must consist of Canadian goods and services (as defined above).
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.
6. **Other Canadian goods and services:**
 - a. For photocopiers, computers and office equipment within FSC groups 36, 70 and 74, only the products of the following firms are considered Canadian goods:
 - i. MERIT Partner under the MERIT Partnership Program (administered by Industry Canada [IC] and Public Works and Government Services Canada [PWGSC]);
 - ii. Companies which, on March 31, 1992, were allocated to Priority Group 1 under the Priority Groups Policy in effect at that time; or
 - iii. CIRCLE Canada companies as agreed on by IC and PWGSC.
 - b. Textiles: Textiles are considered to be Canadian goods according to a modified rule of origin, copies of which are available from the Clothing and Textiles Division, Commercial and Consumer Products Directorate.

2. Status and Availability of Resources

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

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

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.

4. Language Capability

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

ANNEX A STATEMENT OF WORK

Objective

The National Research Council of Canada needs an overall assessment of an existing design and the development and definition of conceptual designs including optimization in terms of manufacturability (including test), cost and performance based on mutually defined requirements.

Introduction and Background

The Square Kilometre Array (SKA) <https://www.skatelescope.org/> is an international radio telescope that is currently in the preconstruction planning phase. One component of this telescope will be a multi-pixel receiver package based upon phased array technology. These receiving packages will be mounted at the focal plane of reflector antennas and are called Phased-Array Feeds (PAF). The reason for using PAFs is that they will expand the instantaneous field of view of the telescope, thereby increasing the speed at which the SKA can perform very sensitive wide-field surveys of the sky.

Canada is a member of the SKA Organization. One of Canada's contributions is the development of PAF technology through work is being performed at the National Research Council. A prototype has been constructed (the Advanced Focal Array Demonstrator or AFAD) and has shown good performance. The prototype was constructed using tools and techniques appropriate for fabricating small numbers of precise instrumentation parts with the top priority design goal being radio sensitivity, not cost or ease of fabrication and assembly. For the SKA large numbers of PAF receiving elements will have to be constructed and assembled. The purpose of this study is to commence the investigation of manufacturing techniques that can produce array elements at a lower cost but with a marginal penalty in sensitivity.

The key attributes of a PAF are that it have a very-low noise figure (below 0.5 dB or 35K), operate over an octave bandwidth, and have a radiation pattern that is well-matched to the optics of a reflector antenna. The low-noise performance depends upon several factors, key ones are using very-low noise transistors in the low-noise amplifiers (LNAs) and controlling losses in circuit structures feeding the LNA. The last point is crucial: a design compromise that leads to a 0.1 dB increase in noise figure (or 7K in effective noise temperature) is too large to be acceptable.

The antenna type used in the AFAD array is a Tapered Slot Antenna, or commonly called a Vivaldi antenna. This type of antenna has a radiation pattern which is suited to reflector antennas under consideration for the SKA.

Description of Prototype Phased-Array Feed

The prototype array, the Advanced Focal Array Demonstrator (AFAD) consists of 41 thick Vivaldi elements with integrated low-noise amplifiers (LNAs). The prototype was constructed to the following specifications:

AFAD Specifications	
Frequency Range	0.7–1.5 GHz
Element Spacing	100 mm
Element Width	95 mm
Element thickness	5 mm
Element Length	158 mm
Taper Length	113 mm
Slot Width	3 mm
Number of Elements	41

Each Vivaldi element consists of two 5mm thick machined aluminum pieces with an LNA installed on the backside of the PCB (relative to picture). The two aluminum pieces are aligned using dowel pins and secured with fasteners. Coupling from the slot-line to the LNA is accomplished by a pin that extends across the slot and is terminated in a grounded socket.

Further details are contained in document: veidt_EuCAP2014_final.pdf.

Specifications for Manufacturing Feasibility Study

The specifications for this study will be based upon Band 2 PAF (SKA-Survey) for the Square Kilometre Array (SKA). These specifications were developed after the AFAD specifications and are slightly different. The difference is the frequency range: 0.65–1.67 GHz. Thus frequency-sensitive dimensions (element spacing, element length, taper length) have to be scaled by the ratio of upper frequencies: $1.5/1.65 \approx 0.90$.

There is some evidence that better performance can be obtained with thicker element dimensions. Therefore the study should investigate the thickness range of 5 to 10 mm.

The following table summarizes element specifications.

Manufacturing Feasibility Study Specifications	
Frequency Range	0.65–1.67 GHz
Element Spacing	90 mm
Element Width	85 mm
Element thickness	5–10 mm
Element Length	142 mm
Taper Length	101 mm
Slot Width	3 mm
Number of Elements	188
Number of PAFs for SKA	60

Project Schedule

Overall SKA Schedule – (For information only)

For reference only , the overall SKA development schedule is summarized below. The PAF design study is the first item in the table.

Activity	Date
Conceptual design assessment and optimization for manufacturing	2014
Detailed design and development	2015
Prototype construction (small array)	2015
Prototype construction (full-sized array)	2016 (Q1)
Design optimization based upon full-size prototype	2016 (Q2 & Q3)
Verification and qualification	2016 (Q4)
Production (60 full-size arrays)	2017

PAF Manufacturing Study Schedule

The work required under the contract, is per the following schedule.

Milestone	Description	Duration (weeks)
M1	Project kick-off	0
M2	Design specification review: general array design	2
M3	Design specification review: antenna element and LNA interface	6
M4	Preliminary concept review and report	8

Change Control

The following procedure will be adopted for any changes identified by the contractor or NRC, at any stage of the project.

Change Request

The change request may be initiated due to any of the following conditions:

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- Identification of a new task.
- Changes in existing tasks.
- Any changes in the project scope, requirements, deliverables, schedule, etc.

The identified change(s) shall be documented and communicated between the Project Managers from the contractor and NRC in the form of a written document provided by hand, electronic mail or facsimile.

Verbally communicated changes must be followed by a written request.

Change Evaluation

All requested or proposed changes will be evaluated, by the contractor and NRC Project Managers, in order to assess potential impact on the project schedule, effort, deliverables and budget.

Change Approval

All changes must be approved and mutually agreed upon by the Project Managers from the contractor and NRC prior to implementation. The contractor will proceed to implement requested changes, which might impact project cost and schedule, only after receipt of written approval from NRC with respect to deliverables, cost and scheduling impacts.

Definition of Terms

AFAD	Advanced Focal Array Demonstrator
EMC	Electromagnetic Compatibility
GHz	Gigahertz
LNA	Low-Noise Amplifier
mm	millimetre
NRC	National Research Council
PAF	Phased-Array Feed
PCB	Printed Circuit Board
RF	Radio Frequency
Rx	receiver
SKA	Square Kilometre Array

NRC – Technical documents

Refer to Annex A1-1

NRC RESPONSIBILITIES

NRC is responsible for the overall PAF concept development including:

- Phased array feed assembly design.
- Antenna element and receiver front-end requirements including system-level compatibility requirements
- Receiver front-end RF architecture and key component selection including new Low-Noise Amplifier (LNA) selection due to obsolescence.
- Receiver front-end circuit schematic definition.
- Antenna element RF design and modeling including sensitivity analysis based on agreed design concepts.
- Receiver front-end interconnect performance evaluation based on proposed concepts.

CONTRACTOR'S RESPONSIBILITIES

The Contractor is responsible for the physical evaluation and optimization of the PAF front-end assembly which includes the antenna element, inter-element mechanical connections, and interface from the antenna element to the LNA input. Evaluation and optimization activities include:

- PAF integrated element sub-assembly packaging and assembly conceptual design

- Preliminary PAF integrated element sub-assembly manufacturability optimization for highest yields and lowest cost
- PAF integrated element circuit conceptual physical design implementation including layout and RF interconnect.
- Input and feedback on the phased array feed assembly design and manufacturability
- Identifying conceptual design alternatives based on material and manufacturing process.
- Test strategy review and recommendation.
- Identify preferred conceptual design option for improved manufacturability and lower cost with similar performance to the current prototype design

The nature of the work will require regular meetings and iterations with NRC and therefore the Contractor must be fluent (written and oral) in English.

DELIVERABLES

1. Report examining possible element fabrication options. Include a comparison table that rates element fabrication options based on RF loss, ease of fabrication, ease of assembly, special tooling, cost of materials, cost of fabrication, mass, mechanical accuracy, and other measures.
2. Report examining possible ways to realize the connection between the LNA input and the element slotline. Include a comparison table that rates slotline connection options based on RF loss, ease of assembly, cost, long-term stability, robustness, special tooling, and other measures.
3. Report examining options for inter-element mechanical connection. Include comparison table that rates inter-element connection options based on ease of fabrication, ease of assembly, RF continuity, cost, special tooling, and other measures.
4. Report on down selection (showing justification) to an integrated solution.
5. Conceptual design of proposed solution.
6. Final report describing work and results from execution of the contract. This report will also contain a comparison between the NRC prototype and the proposed solution. This comparison will consider RF losses, cost of materials, cost of fabrication, difficulty of assembly, special tooling, mass, and other factors. This report will also have production-unit estimates of price and mass for the proposed concept.

Deliverables Format

All deliverables must be delivered in electronic format in English, two (2) copies on a CD, DVD, USB key or external drive, as well as:

- All documentation created or received in connection with evaluations or development that could not be included in the report.

SUBSEQUENT PHASES

NRC may wish to amend any resultant contract issued to the successful bidder to include the following additional phases (a) design iteration, (b) prototype fab and test; (c) pre-production fabrication, (d) production, etc, and or , at Canada’s discretion, Canada may competitively tender the additional phases.

ANNEX A-1 NRC Reference Documents

The solicitation package contains electronic documents that are essential for bidders to understand the technical nature of the work and must be requested from the PWGSC Contracting Authority in writing.

Document number	Title	Date
veidt_EuCAP2014_final.pdf	Noise Performance of a Phased-Array Feed Composed of Thick Vivaldi Elements with Embedded Low-Noise Amplifiers	Mar 19 2014
AFAD_Vivaldi_dimensions.pdf	Thick Vivaldi Design	Mar 19 2014
reference Photos	AFAD_anechoic, AFAD_closeup, fb1_0995, fb2_0996, fb3_0998, fb4_0999, IMG1647_small	Mar 19 2014

ANNEX B BASIS OF PAYMENT**1. LABOUR :**

The Contractor agrees to provide the following resources at the following firm all inclusive rates. The contractor shall only invoice for the actual level of effort provided at the firm hourly rate.

Instructions: Complete the table below, and indicate the category of resources proposed, approximate level of effort (estimated maximum number of hours) required and the firm hourly rates.

line	Category of Resources	Firm Hourly Rates	Estimated Number of hours	Extension (Firm hourly rates x Estimated number of hours)
1.	Engineer	\$____.00	Hours_____	\$_____.00
2.	Other * (_____)	\$____.00	Hours_____	\$_____.00
3.	Other * (_____)	\$____.00	Hours_____	\$_____.00
4.	Other * (_____)	\$____.00	Hours_____	\$_____.00
5.	<p>Travel and Living Expenses Travel and living expenses are limited for one Contractor's employee to <u>attend 1 (one) meeting</u> for up to an estimated 3 days for initial discussions / kick-off meeting at the NRC site, 717 White Lake Road, Kaleden BC.</p> <p>The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp , and with the other provisions of the directive referring to "travellers", rather than those referring to "employees"</p>			\$_____.00
6	MATERIALS AND SUPPLIES			
	**Total quoted amount			\$_____.

*Other (applicable – insert the resource (i.e. project manager ; technologist; and indicate the firm hourly rate

With the exception of the firm rate(s) and price(s), the amounts shown in the various items specified above are estimates only. Minor changes to these estimates will be accepted for billing purposes as the Work proceeds, provided that these changes have the prior approval of the Technical Authority and provided that the estimated cost does not exceed the aforementioned Ceiling Price.