



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 18M Antenna Study	
Solicitation No. - N° de l'invitation 31034-172817/A	Date 2018-02-08
Client Reference No. - N° de référence du client 31034-172817	
GETS Reference No. - N° de référence de SEAG PW-\$VIC-251-7455	
File No. - N° de dossier VIC-7-40204 (251)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2018-02-26	Time Zone Fuseau horaire Pacific Standard Time PST
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: Fletcher, Erin	Buyer Id - Id de l'acheteur vic251
Telephone No. - N° de téléphone (250) 415-6020 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: NATIONAL RESEARCH COUNCIL CANADA 717 White Lake Road Kaleden British Columbia VOH 1K0 Canada	

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

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Amd. No. - N° de la modif.
File No. - N° du dossier
VIC-7-40204

Buyer ID - Id de l'acheteur
VIC 251
CCC No./N° CCC - FMS No./N° VME

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PART 1 - GENERAL INFORMATION

1.1 Introduction

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

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 Bid Preparation Instructions: provides Bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;
- Part 5 Certifications and Additional Information: includes the certifications and additional information 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, the Basis of Payment / Schedule of Milestones, the Electronic Payment Instruments, the Task Authorization Form 572, and other annexes.

1.2 Summary

The Next Generation Very Large Array (ngVLA) is a project of the National Radio Astronomy Observatory (NRAO) to design and build an astronomical observatory that will operate at centimeter wavelengths (25 to 0.26 centimeters, corresponding to a frequency range extending from 1.2 GHz to 116 GHz). The observatory will be a synthesis radio telescope comprised of approximately 214 reflector antennas each of 18 meters diameter, operating in a phased or interferometric mode.

As a contribution to the ngVLA the National Research Council of Canada (NRC) through its Herzberg Astronomy and Astrophysics (HAA) Astronomy Technology Program is undertaking a design study of an 18m Offset Gregorian Feed-low Antenna based on its Single-piece, Rim-supported Composite reflector technology.

In order to ensure the success of the design study NRC wishes to engage an industrial entity to provide a system engineering support to the design team. The system engineer will provide interface control between the sub-elements designs, guidance in the interpretation of the requirements and verification of the design against the requirements.

The kick-off meeting will be conducted in person at NRC's facility in Penticton, BC. The nature and scope of the Work will require regular meetings and iterations with NRC.

The Work outlined in the Statement of Work is expected to be complete within approximately 9 months from date of approval.

The requirement is subject to the Canadian Free Trade Agreement (CFTA).

The requirement is subject to a preference for Canadian goods and/or services.

1.3 Debriefings

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

1.4 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 and 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.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

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

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

The [2003](#) (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.2 Submission of Bids

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

2.3 Former Public Servant

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

Definitions

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

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or

- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

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

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

Former Public Servant in Receipt of a Pension

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

If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

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

Work Force Adjustment Directive

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

If so, the Bidder must provide the following information:

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

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

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than **seven (7)** calendar days before the bid closing date. Enquiries received after that time may not be answered.

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

2.5 Applicable Laws

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

2.6 Basis for Canada's Ownership of Intellectual Property

The NRC has determined that any intellectual property rights arising from the performance of the Work under the resulting contract will belong to Canada, for the following reasons, as set out in the [Policy on Title to Intellectual Property Arising Under Crown Procurement Contracts](#):

- the main 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 expanded Background to the private sector, through licensing or assignment of ownership (not necessarily to the original Contractor), for the purposes of Commercial Exploitation;

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

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

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

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

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](#) (<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.

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 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 Technical Criteria described in Annex A1.

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.

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 written notice to the Bidder.

Section II: Financial Bid

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

3.1.2 Electronic Payment of Invoices – Bid

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

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

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

3.1.3 Exchange Rate Fluctuation

C3011T (2013-11-06) Exchange Rate Fluctuation

Section III: Certifications

Bidders must submit the certifications and additional information required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.
- (c) The evaluation team will determine first if there are two or more bids with a valid Canadian Content certification. In that event, the evaluation process will be limited to the bids with the certification; otherwise, all bids will be evaluated. If some of the bids with a valid certification are declared non-responsive, or are withdrawn, and less than two responsive bids with a valid certification remain, the evaluation will continue among those bids with a valid certification. If all bids with a valid certification are subsequently declared non-responsive, or are withdrawn, then all the other bids received will be evaluated.

4.1.1 Mandatory and Point Rated Technical Evaluation

Mandatory and Pointed Rated Technical Evaluation Criteria are included in Annex A1.

4.1.2 Financial Evaluation

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

4.2 Basis of Selection

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

1. To be declared responsive, a bid must:
 - a. comply with all the requirements of the bid solicitation; and
 - b. meet all mandatory criteria; and
 - c. obtained the required minimum points specified for each criterion for the technical evaluation, and
 - d. obtain the required minimum of 190 points overall for the technical evaluation criteria which are subject to point rating.
The rating is performed on a scale of 450 points.
2. Bids not meeting (a) or (b) or (c) or (d) will be declared non-responsive.
3. The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 60% for the technical merit and 40% for the price.
4. To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 60%.

5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 40%.
6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
7. Neither the responsive bid obtaining the highest technical score nor the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 60/40 ratio of technical merit and price, respectively. The total available points equals 135 and the lowest evaluated price is \$45,000 (45).

Basis of Selection – Highest Combined Rating of Technical Merit (60%) and Price (40%)

	Bidder 1	Bidder 2	Bidder 3
Overall Technical Score	115/135	89/135	92/135
Bid Evaluated Price	\$55,000.00	\$50,000.00	\$45,000.00
Calculations	Technical Merit Score	115/135 x 60 = 51.11	89/135 x 60 = 39.56
	Pricing Score	45/55 x 40 = 32.73	45/50 x 40 = 36.00
Combined Rating	83.84	75.56	80.89
Overall Rating	1st	3rd	2nd

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

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

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the Integrity declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid but may be submitted afterwards. If any of these required certifications or additional information is not completed and

submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame specified will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

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

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/canada/esdc-labour) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

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

5.2.3 Additional Certifications Precedent to Contract Award

5.2.3.1 Canadian Content Certification

This procurement is conditionally limited to Canadian services.

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

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

The Bidder certifies that:

() the services offered are Canadian services as defined in paragraph 4 of clause A3050T.

For more information on how to determine the Canadian content for a mix of goods, a mix of services or a mix of goods and services, consult Annex 3.6.(9), Example 2, of the [Supply Manual](#).

5.2.3.1.1 SACC Manual clause [A3050T](#) (2014-11-27) Canadian Content Definition.

5.2.3.2 Status and Availability of Resources

SACC Manual clause A3005T (2010-08-16), Status and Availability of Resources

5.2.3.3 Education and Experience

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

5.2.3.4 Language Capability

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

PART 6 - RESULTING CONTRACT CLAUSES

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

6.1 Statement of Work

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

6.1.1 Task Authorization

The Work or a portion of the Work to be performed under the Contract will be on an "as and when requested basis" using a Task Authorization (TA). The Work described in the TA must be in accordance with the scope of the Contract.

6.1.1.1 Task Authorization Process

1. The Project Authority will provide the Contractor with a description of the task using the Task Authorization form specified in Annex "D".
2. The Task Authorization (TA) will contain the details of the activities to be performed, a description of the deliverables, and a schedule indicating completion dates for the major activities or submission dates for the deliverables. The TA will also include the applicable basis (bases) and methods of payment as specified in the Contract.
3. The Contractor must provide the Project Authority, within 5 calendar days of its receipt, the proposed total estimated cost for performing the task and a breakdown of that cost, established in accordance with the Basis of Payment specified in the Contract.
4. The Contractor must not commence work until a TA authorized by the Project Authority has been received by the Contractor. The Contractor acknowledges that any work performed before a TA has been received will be done at the Contractor's own risk.

6.1.1.2 Task Authorization Limit

The Project Authority may authorize individual task authorizations up to a limit of \$40,000.00, Applicable Taxes included, inclusive of any revisions.

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

6.1.1.3 Portion of the Work – Task Authorizations

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

6.2 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) (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

6.2.1 General Conditions

[2035 \(2016-04-04\)](#), General Conditions - Higher Complexity - Services, apply to and form part of the Contract.

6.2.2 Supplemental General Conditions

4007 (2010-08-16), Canada to Own Intellectual Property Rights in Foreground Information, apply to and form part of the Contract.

6.3 Security Requirements

6.3.1 There is no security requirement applicable to the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of Contract to December 31, 2018, inclusive.

6.4.2 Option to extend the Contract

The Contractor grants to Canada the irrevocable option to extend the term of the Contract by up to one (1) additional one (1) year period under the same conditions. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise this option at any time by sending a written notice to the Contractor at least thirty (30) calendar days before the expiry date of the Contract. The option may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Erin Fletcher
Title: Supply Specialist
Public Works and Government Services Canada
Acquisitions Branch
Directorate: Pacific Region
Address: 401 – 1230 Government St. Victoria, BC V8W 3X4
Telephone: 250-415-6020
E-mail address: erin.fletcher@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform

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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.

In the event that you are unable to contact the above noted Authority, please contact PAC.VICCA@pwgsc-tpsgc.gc.ca

6.5.2 Project Authority

The Project Authority for the Contract is: *(to be provided at Contract award)*

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

6.5.3 Contractor's Representative

Name: _____
Title: _____
Company: _____
Address: _____
Telephone: _____
Facsimile: _____
E-mail address: _____
Mobile: _____

6.5.4 Procurement Authority

The Procurement Authority for the Contract is: *(to be provided at Contract award)*

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 the Work can only be made through a contract amendment issued by the Contracting Authority.

6.6 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.

6.7 Payment

6.7.1 Basis of Payment

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work as determined in accordance with the Basis of Payment in Annex "B", to a ceiling price of \$ _____ **(amount inserted 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.

6.7.1.1 Basis of Payment Limitation of Expenditure – Task Authorizations

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

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

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

6.7.2 Limitation of Price

SACC Manual clause [C6000C](#) (2017-08-17) Limitation of Price

6.7.3 Method of Payment

6.7.3.1 Milestone Payments

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

- a. an accurate and complete claim for payment using [PWGSC-TPSGC 1111 \(http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf\)](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;
- c. all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

6.7.3.2 Schedule of Milestones

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

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

6.7.4 SACC Manual Clauses

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

6.7.5 Electronic Payment of Invoices – Contract

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

- a. Visa Acquisition Card;

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

6.8 Invoicing Instructions – Progress Payment Claim

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment (attached at Annex E).

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. a list of all expenses;
- d. the description and value of the milestone claimed as detailed in the Contract.

Each claim must be supported by:

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

2. Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.
3. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Procurement Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

The Procurement Authority will then forward the original and two (2) copies of the claim to the Contracting Authority for certification and onward submission to the Payment Office for remaining certification and payment action.

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

6.9 Certifications and Additional Information

6.9.1 Compliance

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

6.9.2 SACC Manual Clauses

A3060C (2008-05-12) Canadian Content Certification

6.10 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*)

6.11 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 (2016-04-04) General Conditions – Higher Complexity – Services;
- d) Annex "A", Statement of Work;
- e) Annex "B", Basis of Payment / Schedule of Milestones;
- f) the signed Task Authorizations (included all of its annexes, if any) (if applicable);
- g) the Contractor's bid dated _____, (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award.*", as clarified on _____ " **or** ", as amended on _____ " *and insert date(s) of clarification(s) or amendment(s)*).

6.12 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.

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ANNEX "A" – STATEMENT OF WORK

(see attached)

ANNEX “A1” – MANDATORY AND POINT RATED TECHNICAL CRITERIA

1. MANDATORY TECHNICAL EVALUATION CRITERIA

Bidders who do not meet these mandatory criteria will be deemed non-responsive.

Substantial Information:

Bidders must demonstrate their compliance with **EACH AND EVERY** section of the evaluation criteria by providing substantial information describing completely and in detail how the requirement is met or addressed. Bidders must provide with their technical bid, a page reference indicating clearly where the substantial information for each of the sections identified below can be found (*fill in right hand column of evaluation tables*).

Item	Mandatory Technical Evaluation Criteria	Complies	Does not comply	Bid Reference pg. #
	<p>Bidders must submit the following technical information <u>with their bid</u>.</p> <p>Failure to provide this information with the bid will render the bid non-responsive.</p>			
M1	<p>RESOURCES PROPOSED</p> <p>Provide a list of the key personnel (and CVs) that will be assigned to the project.</p> <p>Bidders must include an estimated breakdown of roles/responsibilities for each individual assigned to the project.</p>			

2. POINT RATED TECHNICAL CRITERIA

Max = maximum number of points; Min = mandatory passing mark; Page # = the page number in your bid that references the required substantiating documentation.

Bidders must obtain the required minimum points for EACH criterion with a pass mark. Bids not meeting this criteria will be declared non-responsive and not evaluated further.

Bids will be assessed in accordance with the evaluation scale provided at the end of Annex A1.

Item	Point Rated Technical Criteria	Evaluation Scale	Max	Min	Bid Reference pg. #
P1	<p>Understanding the 'Statement of Work'</p> <p>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 in the Statement of Work.</p> <p>The understanding of the three elements will be evaluated independently and assessed as follows:</p> <p>Context (max. 50 pts.) Scope (max. 50 pts.) Objectives (max. 50 pts.)</p> <p>The Bidder's total score for this criteria will be the average of the individual scores for the three elements.</p> <p>Example of calculation:</p> <p>The Bidder scores as follows:</p> <p>45 / 50 for Context 40 / 50 for Scope 35 / 50 for Objectives</p> <p>Bidder's total score: $(45 + 40 + 35) / 3 = 40$</p>	<p>EXCELLENT – 50 pts.</p> <p>VERY GOOD – 40 pts.</p> <p>GOOD – 30 pts.</p> <p>ACCEPTABLE – 20 pts.</p> <p>WEAK – 10 pts.</p> <p>INADEQUATE – 0 pts.</p>	50	30	

Item	Point Rated Technical Criteria	Evaluation Scale	Max	Min	Bid Reference pg. #
P2	<p>Bidder's Radio Frequency Systems Engineering Experience</p> <p>Bidders should demonstrate knowledge of systems engineering of radio frequency systems involving large ($\geq 6m\varnothing$) parabolic reflector antennas.</p> <p>Bidders are to provide three (3) examples of project experience directly related to this criteria. Projects must be recent, i.e. within the last five (5) years, and at a minimum must demonstrate the type of system integrated, location of project, and the Bidder's role in the project.</p> <p>Each project will be scored out of a maximum 50 pts. and the total score for this criteria will be the sum of the individual scores for the three (3) projects.</p> <p>Example of calculation:</p> <p>The Bidder scores as follows:</p> <p>40 / 50 for Project 1 20 / 50 for Project 2 30 / 50 for Project 3</p> <p>Bidder's total score: (40 + 20 + 30) = 90 pts.</p>	<p>EXCELLENT – 50 pts.</p> <p>VERY GOOD – 40 pts.</p> <p>GOOD – 30 pts.</p> <p>ACCEPTABLE – 20 pts.</p> <p>WEAK – 10 pts.</p> <p>INADEQUATE – 0 pts.</p> <p>Bidders will be scored for each example up to a maximum of three (3).</p>	150	60	
P3	<p>Bidder's Radio Frequency Systems Requirements Experience</p> <p>Bidder's experience in the <i>defining of performance requirements for radio frequency systems.</i></p>				

Item	Point Rated Technical Criteria	Evaluation Scale	Max	Min	Bid Reference pg. #
	<p>Bidders are to provide two (2) examples of project experience directly related to this criteria. Projects must be recent, i.e. within the last five (5) years, and at a minimum must demonstrate the type of system, the Bidder's role in the project, and an example of the system requirements.</p> <p>Each project will be scored out of 50 pts. and the total score for this criteria will be the sum of the individual scores for the two (2) projects.</p> <p>Example of calculation:</p> <p>The Bidder scores as follows:</p> <p>30 / 50 for Project 1 40 / 50 for Project 2</p> <p>Bidder's total score: (30 + 40) = 70 pts.</p>	<p>EXCELLENT – 50 pts.</p> <p>VERY GOOD – 40 pts.</p> <p>GOOD – 30 pts.</p> <p>ACCEPTABLE – 20 pts.</p> <p>WEAK – 10 pts.</p> <p>INADEQUATE – 0 pts.</p> <p>Bidders will be scored for each example up to a maximum of two (2).</p>	100	40	
P4	<p>Bidder's System Verification Experience</p> <p>Bidder's experience in the <i>integration and verification of complex systems</i>.</p> <p>Bidders are to provide two (2) examples of project experience directly related to this criteria. Projects must be recent, i.e. within the last five (5) years, and at a minimum must demonstrate the type of system integrated, location of the project, integration and verification processes implemented.</p>	<p>EXCELLENT – 50 pts.</p> <p>VERY GOOD – 40 pts.</p> <p>GOOD – 30 pts.</p> <p>ACCEPTABLE – 20 pts.</p> <p>WEAK – 10 pts.</p> <p>INADEQUATE – 0 pts.</p>	100	40	

Item	Point Rated Technical Criteria	Evaluation Scale	Max	Min	Bid Reference pg. #
	<p>Each project will be scored out of 50 pts. and the total score for this criteria will be the sum of the individual scores for the two (2) projects.</p> <p>Example of calculation:</p> <p>The Bidder scores as follows:</p> <p>50 / 50 for Project 1 40 / 50 for Project 2</p> <p>Bidder's total score: (50 + 40) = 90 pts.</p>	<p>Bidders will be scored for each example up to a maximum of two (2).</p>			
<p>P5</p>	<p>Bidder's Composite Structure Fabrication Experience</p> <p>Bidder's experience in performing projects in a field related to the construction of large composite structures.</p> <p>Bidders are to provide one (1) example of project experience directly related to this criteria. Project must be recent, i.e. within the last five (5) years, and at a minimum must outline the materials and processes used, describe any quality control methods used applicable to the accuracy, repeatability and long-term (geometrical and dimensional) stability of the structures.</p> <p>This project will be scored out of 50 pts.</p>	<p>EXCELLENT – 50 pts.</p> <p>VERY GOOD – 40 pts.</p> <p>GOOD – 30 pts.</p> <p>ACCEPTABLE – 20 pts.</p> <p>WEAK – 10 pts.</p> <p>INADEQUATE – 0 pts.</p> <p>Bidders will be scored for one (1) project.</p>	<p>50</p>	<p>20</p>	
<p>Total Points 450</p>					

THE SAME PROJECT EXAMPLE MAY BE USED TO MEET MULTIPLE CRITERIA.

Evaluation Scale for Qualitative Criteria

INADEQUATE	WEAK	ACCEPTABLE	GOOD	VERY GOOD	EXCELLENT
Did not submit information which could be evaluated or inadequate information submitted.	Lacks complete or almost complete understanding of the requirements.	Has some understanding of the requirements.	Demonstrates a good understanding of the requirements.	Demonstrates a very good understanding of the requirements.	Demonstrates expert understanding of the requirements
.....	Weaknesses cannot be corrected or doubtful that weaknesses can be corrected.	Generally, there is a good chance that weaknesses can be easily corrected.	Weaknesses can be easily corrected.	No significant weaknesses.	No apparent weaknesses
.....	Poor; insufficient to meet performance requirements or little capability to meet performance requirements.	Minimum acceptable capability, should meet minimum performance.	Satisfactory capability, should ensure effective results.	Very satisfactory capability, should ensure very effective results.	Superior capability, should ensure superior results

ANNEX "B" – BASIS OF PAYMENT / SCHEDULE OF MILESTONES

Milestone No.	Description	% of total Bid price	Firm Amount CAD \$	Due Dates (estimated)
1	Draft Concept Performance Budgets Draft Concept Internal ICDs Draft Concept Sub-Element Requirements Draft Concept Verification Plan	10%		31-Mar-18
2	Concept Performance Budgets Concept Internal ICDs Concept Sub-Element Requirements Concept Verification Plan	25%		30-Apr-18
3	Concept Design Review	15%		16-May-18
4	Preliminary Performance Budgets Preliminary Internal ICDs Preliminary Sub-Element Requirements Preliminary Verification Plan	25%		31-Jul-18
5	Preliminary Design Review	15%		19-Sep-18
6	Final Deliverables	10%		19-Oct-18

TOTAL EVALUTED BID PRICE (GST Extra as applicable) \$ _____.

Additional Expenses

1. Travel and Living Expenses

Travel and Living Expenses

Travel and Living expenses are limited for one Contractor's employee to attend 1 (one) meeting for up to an estimated 3 days for initial discussions / kick-off meeting at the NRC site, 717 White Lake Road, Kaleden BC.

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 to those referring to "employees".

All Travel must have the prior authorization of the Project Authority. All payments are subject to government audit.

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2. Additional Labour

Labour for additional services beyond the scope of the tender and requested by NRC, shall be invoiced as per the following rates:

Project Manager \$ _____ / hourly

Senior Engineer \$ _____ / hourly

Engineer \$ _____ / hourly

Technologist \$ _____ / hourly

Other _____* \$ _____ / hourly

*Contractor to specify.

Note: The cost for additional expenses as per 1) and 2) above shall **not** be included in the Financial Evaluation.

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ANNEX "C" to PART 3 OF THE BID SOLICITATION

ELECTRONIC PAYMENT INSTRUMENTS

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

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

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ANNEX "D" – TASK AUTHORIZATION PWGSC-TPSGC 572

(see attached)

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ANNEX "E" - PWGSC-TPSGC 1111, CLAIM FOR PROGRESS PAYMENT

(see attached)



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Statement of Work
ngVLA 18m Antenna Study System Engineering
Status: Released

PREPARED BY	ORGANIZATION
	HAA-NRC

APPROVAL	ORGANIZATION	SIGNATURE
	HAA-NRC	



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Change Record

VERSION	DATE	REASON
01	05/10/17	Initial Draft.
02	25/10/17	Sec 3.2.1 “Aperture Efficiency” changed to “Surface Accuracy”.
A	17/01/18	Milestones and deliverables schedules revised. - Released



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1 INTRODUCTION

The Next Generation Very Large Array (ngVLA) is a project of the National Radio Astronomy Observatory (NRAO) to design and build an astronomical observatory that will operate at centimeter wavelengths (25 to 0.26 centimeters, corresponding to a frequency range extending from 1.2 GHz to 116 GHz). The observatory will be a synthesis radio telescope comprised of approximately 214 reflector antennas each of 18 meters diameter, operating in a phased or interferometric mode.

As a contribution to the ngVLA the National Research Council of Canada (NRC) through its Herzberg Astronomy and Astrophysics (HAA) Astronomy Technology Program is undertaking a design study of an 18m Offset Gregorian Feed-low Antenna based on its Single-piece, Rim-supported Composite reflector technology.

Initial estimates suggest that the antenna structure and servo system will account for approximately one third to one half of the construction cost of the array, so careful consideration of the specifications, and the development of a novel design to meet them, is crucial to project success. The key challenge of this work is to deliver a design that can be manufactured in volume and delivered affordably. A second challenge is reducing the maintenance burden and total lifecycle cost.

In order to ensure the success of the design study NRC wishes to engage an industrial entity to provide a system engineering support to the design team. The system engineer will provide interface control between the sub-elements designs, guidance in the interpretation of the requirements and verification of the design against the requirements.

It is important to note that the design generated from this study is not expected to be the final design. Further detailed design iteration will need to be completed prior to proceeding to prototype or construction, and the specifications for the final antenna design may change based on lessons learned in this design exercise or other parallel activities. The goal is to pursue a novel approach to antenna design that may offer greater value than traditional manufacturing techniques, through to the project design and development phase for evaluation as part of the formal ngVLA conceptual design.

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2 APPLICABLE DOCUMENTS

Table 2 provides a listing of the documentation applicable to the work performed in this contract.

Ref. No.	Document Number	Document Title
AD01	020.25.00.00.00-001-SPE	ngVLA Antenna: Preliminary Technical Specifications
AD02	TBD	Statement of Work, NRC ngVLA 18m Antenna Study

3 SCOPE OF WORK

3.1 Project Meetings

Project meetings as described below. NRC shall deliver minutes from project meetings to ensure understanding and agreement of decisions taken, new actions assigned, and status of prior assigned actions.

3.1.1 Kick-Off Meeting

The kick-off will be conducted in person at NRC’s facility in Penticton BC.

3.1.2 Conceptual Design Review (CoDR)

The goal for the CoDR is for NRC to present a down-select or major conceptual options within the ngVLA antenna design. The CoDR will be conducted in-person at NRC’s facility. Materials relevant to the review should be distributed no later than five business days in advance of the review. For further details see [AD02].

3.1.3 Preliminary Design Review (PDR)

The PDR is the opportunity for NRC to present their costed Design, and the deliverables of [AD02]. The PDR will be conducted in-person at NRC’s facility. Materials relevant to the review should be distributed no later than five business days in advance of the review. For further details see [AD02].

3.1.4 Project Status Meetings

3.1.4.1 NRC Team Status Meetings

NRC will conduct regular status meetings with the members of the design team. The project

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status meetings will be primarily conducted via teleconference. The cadence of status meetings will be determined by NRC and may vary depending on the phase of the project.

3.1.4.2 ngVLA Project Status Meetings

NRC will conduct regular status meetings with the ngVLA project office. The system engineer’s attendance at these meetings will be welcomed and may be required at times in the project. The project status meetings will be primarily conducted via teleconference, with NRC proposing the cadence of status meetings.

3.2 Deliverables

The following are the minimum list of deliverables as identified by the NRC project team. Two versions of each deliverable are required; an initial version with sufficient detail to support the concept design phase and a second comprehensive version to support the preliminary design phase.

3.2.1 Performance Budgets

Antenna performance budgets defining performance requirements allocations to antenna sub-elements. This should include, at a minimum:

1. Pointing Error
2. Surface Accuracy

3.2.2 Internal Interface Control Documents

Due to the distributed design nature of the NRC led team internal interfaces need to be well defined. These may be as simple as a drawing or 3D model. They will be required for;

1. Elevation Rotating Assembly to Azimuth Rotating Assembly
2. Feed Indexing Mechanism to Elevation Rotating Assembly
3. Servo Drive System to Elevation Rotating Assembly
4. Servo Drive System to Azimuth Rotating Assembly
5. Azimuth Rotating Structure to Azimuth Rotating Mechanism

3.2.3 Sub-Element Requirements

Where applicable sub-element requirements will be required to be derived from the ngVLA 18m Antenna Requirements [AD01].

3.2.4 Verification Plan

A verification plan that defines the analysis required to provide evidence that the antenna design will meet the requirements. This plan will include, at a minimum;

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- Definitions of load cases.
- Analysis method to be used.
- Results format.
- Method of combining sub-element results where applicable.

4 SCHEDULE

4.1 Duration

The work outlined in this SOW is expected to be complete within approximately 9 months from date of approval.

4.2 Milestones

The following list is the minimum set of milestones. The timing of the contract kick-off milestone is to be agreed upon between NRC and the contractor at the time of the contract award. The Review milestones are driven by the project SOW issued by NRAO and exact dates are nominal.

Milestone	Deadline
Contract Signed / Approved	T ₀
Contract Kick-Off	T ₀ + <0.5 month
Conceptual Design Review	16 May 2018
Preliminary Design Review	19 Sept 2018
Final Deliverables Received	17 Oct 2018

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4.3 Deliverables Schedule

The timing of the deliverable dates are nominal and exact dates will be mutually agreed between NRC and the contractor at time of contract award.

Deliverable	Deadline
Draft Concept Performance Budgets	31 Mar 2018
Draft Concept Internal ICDs	31 Mar 2018
Draft Concept Sub-Element Requirements	31 Mar 2018
Draft Concept Verification Plan	31 Mar 2018
Concept Performance Budgets	30 Apr 2018
Concept Internal ICDs	30 Apr 2018
Concept Sub-Element Requirements	30 Apr 2018
Concept Verification Plan	30 Apr 2018
Preliminary Performance Budgets	31 July 2018
Preliminary Internal ICDs	31 July 2018
Preliminary Sub-Element Requirements	31 July 2018
Preliminary Verification Plan	31 July 2018

5 ACCEPTANCE

The acceptance of all deliverables will reside with the NRC ngVLA Antenna Project Manager, who will maintain a small team of advisors in order to ensure the completeness of each stage of the project and that the scope of work has been met. Once the final deliverables have been approved, the contractor will provide a project closure report to NRC. The acceptance of this documentation by the Project Manager will acknowledge acceptance of all project deliverables and that the contractor has met all assigned activities.

Task Authorization Autorisation de tâche

Instruction for completing the form PWGSC - TPSGC 572 - Task Authorization
(Use form DND 626 for contracts for the Department of National Defence)

Instruction pour compléter le formulaire PWGSC - TPSGC 572 - Autorisation de tâche
(Utiliser le formulaire DND 626 pour les contrats pour le ministère de la Défense)

Contract Number

Enter the PWGSC contract number.

Numéro du contrat

Inscrire le numéro du contrat de TPSGC.

Contractor's Name and Address

Enter the applicable information

Nom et adresse de l'entrepreneur

Inscrire les informations pertinentes

Security Requirements

Enter the applicable requirements

Exigences relatives à la sécurité

Inscrire les exigences pertinentes

Total estimated cost of Task (Applicable taxes extra)

Enter the amount

Coût total estimatif de la tâche (Taxes applicables en sus)

Inscrire le montant

For revision only

Aux fins de révision seulement

TA Revision Number

Enter the revision number to the task, if applicable.

Numéro de la révision de l'AT

Inscrire le numéro de révision de la tâche, s'il y a lieu.

Total Estimated Cost of Task (Applicable taxes extra) before the revision

Enter the amount of the task indicated in the authorized TA or, if the task was previously revised, in the last TA revision.

Coût total estimatif de la tâche (Taxes applicables en sus) avant la révision

Inscrire le montant de la tâche indiquée dans l'AT autorisée ou, si la tâche a été révisée précédemment, dans la dernière révision de l'AT.

Increase or Decrease (Applicable taxes extra), as applicable

As applicable, enter the amount of the increase or decrease to the Total Estimated Cost of Task (Applicable taxes extra) before the revision.

Augmentation ou réduction (Taxes applicables en sus), s'il y a lieu

S'il y a lieu, inscrire le montant de l'augmentation ou de la réduction du Coût total estimatif de la tâche (Taxes applicables en sus) avant la révision.

1. Required Work: Complete sections A, B, C, and D, as required.

1. Travaux requis : Remplir les sections A, B, C et D, au besoin.

A. Task Description of the Work required:

A. Description de tâche des travaux requis :

Complete the following paragraphs, if applicable.
Paragraph (a) applies only if there is a revision to an authorized task.

Remplir les alinéas suivants, s'il y a lieu : L'alinéa (a) s'applique seulement s'il y a révision à une tâche autorisée.

(a) Reason for revision of TA, if applicable:
Include the reason for the revision; i.e. revised activities; delivery/completion dates; revised costs. Revisions to TAs must be in accordance with the conditions of the contract. See Supply Manual 3.35.1.50 or paragraph 6 of the Guide to Preparing and Administering Task Authorizations.

(a) Motif de la révision de l'AT, s'il y a lieu : Inclure le motif de la révision c.-à.-d., les activités révisées, les dates de livraison ou d'achèvement, les coûts révisés. Les révisions apportées aux AT doivent respecter les conditions du contrat. Voir l'article 3.35.1.50 du Guide des approvisionnements ou l'alinéa 6 du Guide sur la préparation et l'administration des autorisations de tâches.

(b) Details of the activities to be performed (include as an attachment, if applicable)

(b) Détails des activités à exécuter (joindre comme annexe, s'il y a lieu).

(c) Description of the deliverables to be submitted (include as an attachment, if applicable).

(c) Description des produits à livrer (joindre comme annexe, s'il y a lieu).

(d) Completion dates for the major activities and/or submission dates for the deliverables (include as an attachment, if applicable).

(d) Les dates d'achèvement des activités principales et (ou) les dates de livraison des produits (joindre comme annexe, s'il y a lieu).

B. Basis of Payment:

Insert the basis of payment or bases of payment that form part of the contract that are applicable to the task description of the work; e.g. firm lot price, limitation of expenditure, firm unit price

C. Cost of Task:**Insert Option 1 or 2:****Option 1:**

Total estimated cost of Task (Applicable taxes extra): Insert the applicable cost elements for the task determined in accordance with the contract basis of payment; e.g. Labour categories and rates, level of effort, Travel and living expenses, and other direct costs.

Option 2:

Total cost of Task (Applicable taxes extra): Insert the firm unit price in accordance with the contract basis of payment and the total estimated cost of the task.

D. Method of Payment

Insert the method(s) of payment determined in accordance with the contract that are applicable to the task; i.e. single payment, multiple payments, progress payments or milestone payments. For milestone payments, include a schedule of milestones.

B. Base de paiement :

Insérer la base ou les bases de paiement qui font partie du contrat qui sont applicables à la description du travail à exécuter : p. ex., prix de lot ferme, limitation des dépenses et prix unitaire ferme.

C. Coût de la tâche :**Insérer l'option 1 ou 2****Option 1 :**

Coût total estimatif de la tâche (Taxes applicables en sus) Insérer les éléments applicables du coût de la tâche établies conformément à la base de paiement du contrat. p. ex., les catégories de main d'œuvre, le niveau d'effort, les frais de déplacement et de séjour et autres coûts directs.

Option 2 :

Coût total de la tâche (Taxes applicables en sus) : Insérer le prix unitaire ferme conformément à la base de paiement du contrat et le coût estimatif de la tâche.

D. Méthode de paiement

Insérer la ou les méthode(s) de paiement établit conformément au contrat et qui sont applicable(s) à la tâche; c.-à.-d., paiement unique, paiements multiples, paiements progressifs ou paiements d'étape. Pour ces derniers, joindre un calendrier des étapes.

2. Authorization(s):

The client and/or PWGSC must authorize the task by signing the Task Authorization in accordance with the conditions of the contract. The applicable signatures and the date of the signatures is subject to the TA limits set in the contract. When the estimate of cost exceeds the client Task Authorization's limits, the task must be referred to PWGSC.

3. Contractor's Signature

The individual authorized to sign on behalf of the Contractor must sign and date the TA authorized by the client and/or PWGSC and provide the signed original and a copy as detailed in the contract.

2. Autorisation(s) :

Le client et (ou) TPSGC doivent autoriser la tâche en signant l'autorisation de tâche conformément aux conditions du contrat. Les signatures et la date des signatures appropriées sont assujetties aux limites d'autorisation de tâche établies dans le contrat . Lorsque l'estimation du coût dépasse les limites d'autorisation de tâches du client, la tâche doit être renvoyée à TPSGC.

3. Signature de l'entrepreneur

La personne autorisée à signer au nom de l'entrepreneur doit signer et dater l'AT, autorisée par le client et (ou) TPSGC et soumettre l'original signé de l'autorisation et une copie tel que décrit au contrat.



Task Authorization Autorisation de tâche

Contract Number - Numéro du contrat

Contractor's Name and Address - Nom et l'adresse de l'entrepreneur	Task Authorization (TA) No. - N° de l'autorisation de tâche (AT)
	Title of the task, if applicable - Titre de la tâche, s'il y a lieu
	Total Estimated Cost of Task (Applicable taxes extra) Coût total estimatif de la tâche (Taxes applicables en sus) \$

Security Requirements: This task includes security requirements
Exigences relatives à la sécurité : Cette tâche comprend des exigences relatives à la sécurité

No - Non Yes - Oui If YES, refer to the Security Requirements Checklist (SRCL) included in the Contract
Si OUI, voir la Liste de vérification des exigences relative à la sécurité (LVERS) dans le contrat



For Revision only - Aux fins de révision seulement

TA Revision Number, if applicable Numéro de révision de l'AT, s'il y a lieu	Total Estimated Cost of Task (Applicable taxes extra) before the revision Coût total estimatif de la tâche (Taxes applicables en sus) avant la révision \$	Increase or Decrease (Applicable taxes extra), as applicable Augmentation ou réduction (Taxes applicables en sus), s'il y a lieu \$
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Start of the Work for a TA : Work cannot commence until a TA has been authorized in accordance with the conditions of the contract.

Début des travaux pour l'AT : Les travaux ne peuvent pas commencer avant que l'AT soit autorisée conformément au contrat.

1. Required Work: - Travaux requis :

A. Task Description of the Work required - Description de tâche des travaux requis	See Attached - Ci-joint <input type="checkbox"/>
B. Basis of Payment - Base de paiement	See Attached - Ci-joint <input type="checkbox"/>
C. Cost of Task - Coût de la tâche	See Attached - Ci-joint <input type="checkbox"/>
D. Method of Payment - Méthode de paiement	See Attached - Ci-joint <input type="checkbox"/>

Contract Number - Numéro du contrat

2. Authorization(s) - Autorisation(s)

By signing this TA, the authorized client and (or) the PWGSC Contracting Authority certify(ies) that the content of this TA is in accordance with the conditions of the contract.

En apposant sa signature sur l'AT, le client autorisé et (ou) l'autorité contractante de TPSGC atteste(nt) que le contenu de cette AT respecte les conditions du contrat.

The client's authorization limit is identified in the contract. When the value of a TA and its revisions is in excess of this limit, the TA must be forwarded to the PWGSC Contracting Authority for authorization.

La limite d'autorisation du client est précisée dans le contrat. Lorsque la valeur de l'AT et ses révisions dépasse cette limite, l'AT doit être transmise à l'autorité contractante de TPSGC pour autorisation.

Name and title of authorized client - Nom et titre du client autorisé à signer

Signature

Date

PWGSC Contracting Authority - Autorité contractante de TPSGC

Signature

Date

3. Contractor's Signature - Signature de l'entrepreneur

Name and title of individual authorized - to sign for the Contractor
Nom et titre de la personne autorisée à signer au nom de l'entrepreneur

Signature

Date

Claim No.
N° de la demande

Contract Serial No.
N° de série du contrat

CERTIFICATE OF CONTRACTOR

I certify that:

- All authorizations required under the contract have been obtained. The claim is consistent with the progress of the work and is in accordance with the contract.
- Indirect costs have been paid for or accrued in the accounts.
- Direct materials and the subcontracted work have been received, accepted and either paid for or accrued in the accounts following receipt of invoice from supplier/subcontractor, and have been or will be used exclusively for the purpose of the contract.
- All direct labour costs have been paid for or accrued in the accounts and all such costs were incurred exclusively for the purpose of the contract;
- All other direct costs have been paid for or accrued in the accounts following receipt of applicable invoice or expense voucher and all such costs were incurred exclusively for the purpose of the contract; and
- No liens, encumbrances, charges or other claims exist against the work except those which may arise by operation of law such as a lien in the nature of an unpaid contractor's lien and in respect of which a progress payment and/or advance payment has been or will be made by Canada.

ATTESTATION DE L'ENTREPRENEUR

J'atteste que :

- Toutes les autorisations exigées en vertu du contrat ont été obtenues. La demande correspond à l'avancement des travaux et est conforme au contrat.
- Les coûts indirects ont été réglés ou portés aux livres.
- Les matières directes et les travaux de sous-traitance ont été reçus, et le tout a été accepté et payé, ou encore porté aux livres après réception de factures envoyées par le fournisseur ou le sous-traitant; ces matières et ces travaux ont été ou seront utilisés exclusivement aux fins du contrat.
- Tous les coûts de la main-d'oeuvre directe ont été réglés ou portés aux livres et tous ces coûts ont été engagés exclusivement aux fins du contrat.
- Tous les autres coûts indirects ont été réglés ou portés aux livres après réception des factures ou pièces justificatives pertinentes et tous ces coûts ont été engagés exclusivement aux fins du contrat.
- Il n'existe aucun privilège ni demande ou imputation à l'égard de ces travaux sauf ceux qui pourraient survenir par effet de la loi, notamment le privilège d'un entrepreneur non payé à l'égard duquel un paiement progressif et/ou un paiement anticipé a été ou sera effectué par le Canada.

Contractor 's Signature - Signature de l'entrepreneur

Title - Titre

Date

Check the box if the claim is being made with respect to advance payment provisions included in the basis of payment of the contract.

Cocher la case si la demande est faite en rapport avec les dispositions relatives aux paiements anticipés qui se trouvent dans la base de paiement du contrat.

This claim, or a portion of this claim, is for an advance payment.

Cette demande, ou une partie de cette demande, est pour un paiement anticipé.

I certify that:

- The funds received will be used solely for the purpose of the contract and attached is a complete description of the purpose to which the advance payment will be applied.
- The amount of the payment is established in accordance with the conditions of the contract.
- The contractor is not in default of its obligations under the contract.
- The payment is related to an identifiable part of the contractual work.

J'atteste que :

- Les fonds reçus ne serviront uniquement qu'aux fins du contrat; ci-joint est une description complète des fins auxquelles le paiement anticipé sera utilisé.
- Le montant du paiement est établi conformément aux conditions du contrat.
- L'entrepreneur n'a pas manqué à ses obligations en vertu du contrat.
- Le paiement porte sur une partie identifiable des travaux précisés dans le contrat.

Contractor 's Signature - Signature de l'entrepreneur

Title - Titre

Date

CERTIFICATES OF DEPARTMENTAL REPRESENTATIVES

Scientific/Project/Inspection Authority: I certify that the work meets the quality standards required under the contract, and its progress is in accordance with the conditions of the contract.

Inspection Authority (all other contracts): I certify that the quality of the work performed is in accordance with the standards required under the contract.

ATTESTATIONS DES REPRÉSENTANTS DU MINISTÈRE

Autorité scientifique ou responsable du projet / de l'inspection : J'atteste que les travaux sont conformes aux normes de qualité exigées en vertu du contrat et que leur avancement est conforme aux conditions du contrat.

Responsable de l'inspection (tous les autres contrats) : J'atteste que la qualité des travaux exécutés est conforme aux normes exigées en vertu du contrat.

Signature of Scientific / Project / Inspection Authority
Signature de l'autorité scientifique ou responsable du projet / de l'inspection

Date

PWGSC Contracting Authority: I certify that, to the best of my knowledge, the claim is consistent with the progress of the work and is in accordance with the contract. This claim, however, may be subject to further verification and any necessary adjustment before final settlement.

Autorité contractante de TPSGC : J'atteste, au meilleur de ma connaissance, que la demande correspond à l'avancement des travaux et est conforme au contrat. Toutefois, cette demande pourrait faire l'objet d'une autre vérification et de tout rajustement nécessaire avant le règlement final.

Contracting Authority Signature de l'autorité contractante

Title - Titre

Date

Client's Authorized Signing Officer - (must sign the interim claim): I certify that the claim is in accordance with the contract.

Signataire autorisé du client - (doit signer la demande provisoire) : J'atteste que la demande est conforme au contrat.

Client Signature du client

Title - Titre

Date

Client's Authorized Signing Officer - (must sign the final claim): I certify that all goods have been received and all services have been rendered, that the work has been properly performed and that the claim is in accordance with the contract.

Signataire autorisé du client - (doit signer la demande finale) : J'atteste que tous les biens ont été reçus, que tous les services ont été rendus, que tous les travaux ont été exécutés convenablement, et que la demande est conforme au contrat.

Client Signature du client

Title - Titre

Date