

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

**REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government
Services Canada**

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

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

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

Comments - Commentaires

Title - Sujet Observation de la terre - ASC		
Solicitation No. - N° de l'invitation EE010-151057/A	Date 2014-10-08	
Client Reference No. - N° de référence du client R.068728.004		
GETS Reference No. - N° de référence de SEAG PW-\$MTC-775-12934		
File No. - N° de dossier MTC-4-37205 (775)	CCC No./N° CCC - FMS No./N° VME	
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2014-10-24		Time Zone Fuseau horaire Heure Avancée de l'Est HAE
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: Aguilera, Maria Pia		Buyer Id - Id de l'acheteur mtc775
Telephone No. - N° de téléphone (514) 496-3573 ()		FAX No. - N° de FAX (514) 496-3822
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: MINISTERE DES TRAVAUX PUBLICS ET SERVICES GOUVERNEMENTAUX CANADA CE-SPT-Environnement COE-PTS-Environnement 1550 AVE D'ESTIMAUVILLE, NEQ QUEBEC Québec G1J 0C7 Canada		

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

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

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

Issuing Office - Bureau de distribution

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

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File No. - N° du dossier

MTC-4-37205

Buyer ID - Id de l'acheteur

mtc775

CCC No./N° CCC - FMS No/ N° VME

See document attached herewith -

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TITLE : EARTH OBSERVATION - SPACE AGENCY

PART 1 - GENERAL INFORMATION

1. Security Requirement

NIL security screening required, no access to sensitive information or assets. Contractor personnel will be escorted in specific areas of the facility / site as and where required by Canadian Space agency personnel or those authorized by CSA to do so on its behalf.

2. Statement of Work

Development of specific detailed methods (Phase II) and demonstration of the applicability of Earth observation technology (Phase III) to an activity associated with the operations of Public Works and Government Services Canada.

3. Distribution of RFP Amendments

Canada will make available Notices of Proposed Procurement (NPP), bid solicitations and related documents for download through the Government Electronic Tendering Service (GETS). Canada is not responsible and will not assume any liabilities whatsoever for the information found on websites of third parties. In the event an NPP, bid solicitation or related documentation would be amended, Canada will not be sending notifications. Canada will post all amendments, including significant enquiries received and their replies, using GETS. It is the sole responsibility of the Bidder to regularly consult GETS for the most up-to-date information. Canada will not be liable for any oversight on the Bidder's part nor for notification services offered by a third party.

4. Debriefings

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

PART 2 - BIDDER INSTRUCTIONS

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](#) (2014-09-25) 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.

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

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.

4. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than five (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 Quebec

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MTC-4-37205

Buyer ID - Id de l'acheteur
mtc775
CCC No./N° CCC - FMS No./N° VME

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.

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 (2 hard copies)
Section II: Financial Bid (1 hard copies)
Section III: Certifications (1hard 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;
- (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 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

In their technical bid, bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

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

1.1.1 Mandatory Technical Criteria

1. The bidding firm should have an expertise in Earth observation (EO) technology via satellite. This expertise should be demonstrated by the presentation of at least two similar projects executed during the past 4 years (provide the project description, location, start date and end date, dollar value and Employer's references (name, organization, phone no.))

The ensemble of projects submitted must clearly demonstrate the expertise of the firm in the following areas:

- a. Development of detailed methods and project realisation with EO technology via satellite.
 - b. Structure identification with EO technology
 - c. Thermal and multispectral data analysis.
2. The project manager in the current proposal should have a management position in one of the projects presented (*provide a copy of project manager's CV*)
 3. The total subcontractor workload should be less than 25% of the mandate (technical and financial). All subcontractors must be identified in the proposal.

1.2 Financial Evaluation

SACC Manual Clause [A0220T](#) (2014-06-26), Evaluation of Price

2. Basis of Selection

Basis of Selection - Mandatory Technical Criteria

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

PART 5 - CERTIFICATIONS

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

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default in carrying out any of its obligations under the Contract, if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

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

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

2.2 Status and Availability of Resources

SACC Manual clause [A3005T](#) (2010-08-16)

2.4 Education and Experience

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

PART 6 - RESULTING CONTRACT CLAUSES

1. Security Requirement

There is no security requirement applicable to this Contract.

2. Statement of Work

See Annex "A"

3. 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.

3.1 General Conditions

2010C (2014-09-25), General Conditions - Services (Medium Complexity) apply to and form part of the Contract.

4. Term of Contract

4.1 Period of the Contract

The period of the contract is from date of contract until 31 March 2016 inclusive.

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Maria Pia Aguilera
Supply Agent
Public Works and Government Services Canada
Acquisitions Branch
800 rue de la Gauchetière Ouest, local 7300
Place Bonaventure
Montréal QC H5A 1L6
Telephone: (514) 496-3573
Facsimile: (514) 496-3822
E-mail address: mariapia.aguilera@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 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 Project Authority

The Project Authority for the Contract is: *(will be completed on contract award)*

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

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

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

5.3 Contractor's Representative

Name : _____
Title : _____
Telephone : _____
Facsimile : _____
Email address : _____

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, as determined in accordance with the Basis of Payment in Annex "A", to a limitation of expenditure of \$ _____ *(insert the amount at contract award)*. Customs duties are included and Applicable Taxes are extra.

7.2 Limitation of Expenditure

1. Canada's total liability to the Contractor under the Contract must not exceed \$ _____ *(to be completed at contract award)* _____ Customs duties are included and Applicable Taxes are extra.
2. No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Work, will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of the Contracting Authority. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:

- a. when it is 75 percent committed, or
 - b. four (4) months before the contract expiry date, or
 - c. as soon as the Contractor considers that the contract funds provided are inadequate for the completion of the Work,
- whichever comes first.
3. If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

7.3 Multiple Payments

SACC *Manual* clause H1001C (2008-05-12) Multiple Payments

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 release document and any other documents as specified in the Contract;
 - c. a copy of the invoices, receipts, vouchers for all direct expenses, and all travel and living expenses;
2. Invoices must be distributed as follows:
 - . The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.

9. Certifications

9.1 Compliance

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

10. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____. (*Insert the name of the province or territory as specified by the Bidder in its bid, if applicable*)

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;
- (c) the general conditions 2010C (2014-09-25);
- (d) Annex A, Statement of Work;
- (e) Annex B, Basis of Payment
- (g) the Contractor's bid dated _____ (*insert date of bid*) as clarified on _____ " **or** ", as amended on _____ " *and insert date(s) of clarification(s) or amendment(s)*

ANNEX "A"

STATEMENT OF WORK

1 – Project title

Development of specific detailed methods (Phase II) and demonstration of the applicability of Earth observation technology (Phase III) to an activity associated with the operations of Public Works and Government Services Canada.

2 - Background – Report by VIASAT GeoTechnologies

Phase I of the project, which was carried out in 2010-11 in collaboration with the Canadian Space Agency (VIASAT 2010), was the first step in a strategy by Public Works and Government Services Canada (PWGSC) to develop Earth observation (EO) technology applications for a number of its key activities. This first step involved assessing the potential of applying EO technology to nine areas of activity undertaken by the Centre of Expertise – Professional and Technical Services (CE-PTS). The analysis demonstrated a high potential for three of these areas, namely:

- 1) monitoring of turbidity plumes in projects involving the dredging and ocean disposal of sediment (*this activity will not be analyzed as part of this mandate*);
- 2) monitoring of shoreline erosion associated with waterfront infrastructure (*this activity will not be analyzed as part of this mandate*);
- 3) **observation of access points to the St. Lawrence River and their use, including ice fishing sites.**

The project comprises an additional two phases. Phase II consists in developing the method for application associated with the most appropriate sensors for the area targeted, as well as preparing the plans and specifications for validating the methods and implementing demonstration projects. Phase III will involve the actual validation of the methods and the implementation of the demonstration projects.

PWGSC also wishes to add an additional area of activity, namely the monitoring of marine mammal watching excursions. This aspect was not analyzed in Phase I in 2010-11.

3 – Current project

3.1) The contractor must carry out Phase II, "Development of application methods and preparation of specifications for validation and demonstration," and Phase III, "Validation of methods and implementation of demonstration projects," for the following field of application: "*observation of access points to the St. Lawrence River and monitoring of their use, including ice fishing sites:*"

- 3.1.1** Update the assessment of the potential of the sensors identified in Phase I.
- 3.1.2** Identify other potential sensors that could be used to gather information relevant to the specific content of the field of application.

- 3.1.3 Compare the limitations and performance of each sensor identified and select the sensors with the best characteristics according to the specific context of the fields of application.
- 3.1.4 Develop satellite image processing methods and protocols according to the specific context of the fields of application.
- 3.1.5 Prepare the specifications required for the validation of the interpretation methods and protocols on the basis of the data collected in the field and subsequently demonstrate the application of the EO technologies to the areas in question. It may be necessary to explore several methods and protocols as part of this step.
- 3.1.6 Prepare the schedule and cost details of the various steps.
- 3.1.7 Participate in project validation and demonstration of the project.

3.2) The contractor must perform the following activities for the application field "*Monitoring of marine mammal watching excursions*:"

- 3.2.1 Identify potential sensors for gathering information relevant to the specific context of the application field.
- 3.2.2 Compare the limitations and performance of each sensor identified and select the sensors with the best characteristics according to the specific context of the application fields.

The following activities will be carried out only if the identified sensors have real potential.

- 3.2.3 Develop satellite image processing methods and protocols according to the specific context of the application field. The contractor will have to coordinate the development of the methods with the stakeholders that conduct the field visits.
- 3.2.4 Prepare the specifications required for the demonstration of the interpretation methods and protocols on the basis of the field data. It may be necessary to explore several methods and protocols as part of this step.
- 3.2.5 Prepare the schedule and cost details of the various steps.
- 3.2.6 Participate in the validation and demonstration of the project.

4 – Description of the work plan for the application fields considered

4.1 Use of EO technology for acquiring information on the use of access points to the St. Lawrence River, including ice fishing sites

4.1.1 Background

Public uses of the St. Lawrence River and its banks include walking, nature watching, relaxation, swimming, pleasure boating and fishing. The Shoreline Access Coordination Committee (CCAR), which was established under the St. Lawrence Plan (phase IV) and dissolved in 2010, conducted an inventory of access sites and their uses with the collaboration of various stakeholders. The inventory showed the limitations of field visits (accessibility, 3

travel costs, etc.) as a means of establishing a detailed and accurate inventory of existing access points, including monitored beaches, docks, marinas and boat ramps or, in the case of cities, fishing sites or simply areas for walking.

Part of the inventory was published on the website of the St. Lawrence Global Observatory (SLGO) in 2013. However, it revealed limitations in terms of the accuracy of the location of the sites inventoried. The main issue is the correspondence between the geodetic points provided by the stakeholders and the actual location of the points. The inaccuracies are due primarily to GPS user errors or data entry errors. The use of satellite images would make it possible to confirm the precise location of existing sites and accurately determine the location of new sites by minimizing human error.

In addition to the St. Lawrence River, the inventory maps 11 tributaries between Cornwall and Blanc Sablon, including the Magdalen Islands. PWGSC wishes to develop a method for using the images, including a determination of the costs associated with the two types of environment (tributaries and St. Lawrence River).

In a related field, the ice fishery would be a particularly interesting aspect with respect to satellite technology. One of the issues with respect to this winter activity is the lack of available information on the use of ice fishing sites over large areas, as well as the level of abandonment of the sites by users at the time of spring thaw, which may contribute to the pollution of aquatic environments. The use of satellite images could contribute to reducing the costs associated with field visits by making it possible to target sites that are actually occupied. Ice fishing sites would need to be geolocated.

4.1.2 Work plan – use and access points to the St. Lawrence River

Activity 1 – The contractor must perform the following activities.

- Update the list of existing sensors on the basis of Phase I and compare the limitations and performance of each.
- From the list of identified sensors, select those that have the best characteristics according to the specific context of the identification of river access points;
- Develop satellite image calibration and processing methods and protocols for the sensors identified as having the best performance.

Activity 2 – The contractor must perform the following activities. The extent of the proposed geographic areas for the validation and demonstration activities is presented in Appendix. It may be necessary to break down the area into sectors if the satellite geographic coverage is limited and depending on the image acquisition costs.

The validation phase will allow to compare the use of EO technology in various types of environments and for various types of access. The types of access points that may be observed using EO technology will be validated, documented, and standardized using uniform terminology. One of the difficulties anticipated is the validation of the uses which, at first glance, would require identification of human presence at the time the satellite sensor passes over the area in question. This activity must take account of temporal and seasonal variables (winter versus summer, weekday versus weekend), which can complicate data acquisition and analysis. The various environments in which the access points are located can also have an impact on the degree of visibility on the satellite images.

- Prepare the specifications required for the validation of the interpretation methods and protocols on the basis of data from the inventory, namely Richelieu River (maps #31, #32, #35 to #37) and Métis (map #98). The inventory is available in ArcGis format.
- Prepare the schedule and cost details associated with the validation phase as described in the specifications.
- Make a list of recent satellite images to acquire to validate the data from the inventory and perform validation. **Purchase of satellite images will be by PWGSC.**
- Prepare a report summarizing the benefits and limitations of the method on the basis of the field conditions present.

Activity 3 – The contractor must perform the following activities. The demonstration phase includes the acquisition of images (by PWGSC) as close in time to the site visits as possible.

- Prepare the specifications required for the demonstration of the application of EO technology on the basis of the conclusions of the validation report (Activity #2). The proposed sites are identified in PWGSC report (May 2014).
- Prepare the schedule and cost details associated with the demonstration phase as described in the plans and specifications.
- Make a list of recent satellite images to acquire and conduct the demonstration in collaboration with the stakeholders in the field. **Purchase of satellite images will be by PWGSC.**
- Prepare a report summarizing Activity #3, including the development of the method for using the satellite images and a comparison of cost/area/work effort.

4.1.3 Work plan – ice fishing

Activity 1 – The contractor must perform the following activities.

- Update the list of existing sensors on the basis of Phase I and compare the limitations and performance of each.
- Of the sensors identified, select those with the best characteristics on the basis of the specific context of ice fishing.
- Develop satellite image calibration and processing methods and protocols for the sensors identified as having the best performance.

Activity 2 – The contractor must perform the following activities. The extent of the proposed geographic areas is presented in Appendix. It may be necessary to break down the area into sectors if the satellite geographic coverage is limited and depending on the image acquisition costs.

- Prepare the specifications required for the validation.

- Prepare the schedule and cost details associated with the validation phase as described in the specifications.
- Make a list of recent satellite images to acquire and conduct the validation in collaboration with the stakeholders in the field. **Purchase of satellite images will be by PWGSC.**
- Prepare a report summarizing the benefits and limitations of the method on the basis of the field conditions present, including the development of the method for using satellite images and a cost/area/work effort comparison.

4.2 Surveillance of marine mammal watching excursions

Marine mammal watching activities are regulated, and watching areas are documented and identified on the websites of various non-profit organizations. Although marine mammal watching may not appear feasible at first, indirect watching through the use of sensors on boats is a practice to be explored.

Activity 1 – The contractor must perform the following activities.

- Update the list of existing sensors on the basis of Phase I and compare the limitations and performance of each. Identify the list of new existing sensors for vessel traffic and compare the limitations and performance of each.
- Of the sensors identified, select those with the best characteristics on the basis of the specific context of whale watching and whale watching excursions boats.

Activity 2 (optional) – The contractor must perform the following activities. The extent of the proposed geographic areas for the validation activities is presented in PWGSC report (May 2014). It may be necessary to break down the area into sectors if the satellite geographic coverage is limited and depending on the image acquisition costs.

- Develop the methods and protocols for the calibration and processing of satellite images for the sensors identified as having the best performance, including their interpretation.
- Prepare the schedule and cost details associated with the validation phase as described in the plans and specifications.
- Make a list of recent satellite images to acquire closest to the actual observation time at the site and perform validation of the protocol and method. **Purchase of satellite images will be by PWGSC.**
- Prepare a report summarizing the benefits and limitations of the method on the basis of the field conditions and the costs associated with the site visit.

5 – Deliverables

5.1 Reports

The contractor must produce:

- a report including all activities #1 in all areas of Section 4;
- a report including all activities #2 in the areas of Section 4.1;
- a report including all activities #2 in the area of Section 4.1;
- if applicable: a report including all activities #2 of the area of Section 4.2.

The reports must be drafted in French and must contain, but not be limited to, the following information:

- an executive summary;
- a context piece on the project, including the general description of the work and the objectives;
- a summary of the results of the previous phase associated with the application field under study;
- list of existing sensors that can be used to meet the project objectives supported by a description of each sensor and examples from the literature;
- presentation of the characteristics of each sensor studied and selected, including their limitations, performance, frequency, scale and other relevant parameters in the form of tables and figures;
- presentation and justification of the sensor(s) with the best characteristics;
- a precise description of the methods required for processing the images and field data needed for calibration of the images, including software, etc.;
- for each application field, a precise description of the information required (baseline conditions) for calibration of the images; all information must be summarized in the text and presented in detail in an appended protocol;
- for each application field, the plans and specifications required for validation of the interpretation methods and protocols on the basis of the data collected in the field and from the inventory; all data must be summarized in the text, and the plans and specifications, including protocols, sampling site plans, etc. must be presented in detail in an appendix (activities #2 and #3 only);
- for each application field, schedules and detailed costs for each step;
- references;
- general conclusions and recommendations.

The preliminary reports must be delivered in electronic format (Word and PDF). The final reports, after acceptance of the modifications to the preliminary report, must be delivered in three (3) double-sided colour copies and two (2) electronic versions on CD-ROM. Particular attention must be given to the presentation of the reports (spelling mistakes, writing style, syntax, etc.). The

electronic version must contain the complete final report in PDF format (including appendices) and all files in their original format (Word, Excel for tables, jpg for all photographs, and AutoCAD for plans and satellite image files, where applicable).

5.2 Presentation

The contractor will be required to prepare and present two joint presentations of all fields in Section 4, namely one for Phase #2 activities and one for Phase #3 activities.

The presentations must be in PowerPoint and PDF formats and electronic copies must be provided. All deliverables must be drafted in French.⁷

All data, both raw and processed, and all tools and protocols developed as part of this mandate are the intellectual property of PWGSC.

ANNEX "B"

BASIS OF PAYMENT

ITEM	SECTION	DELIVRABLE	DELIVERY DATE	PRICE
2014 - 2015				
No1	Section 4 sub-sections 4.1 and 4.2 <i>Including articles 4.1.2, 4.1.3</i>	Preliminary report of activity #1	No later than 3 weeks after start of mandate	\$
No2		Final report of activity #1	No later than 5 days after receipt of comments	\$
No3	Section 4 sub-section 4.1 <i>Including les articles 4.1.2, 4.1.3</i>	Preliminary report of activity #2	Before February 28 th , 2015	\$
No4		Final report of activity #2 Presentation of Activity #2	No later than 5 days after receipt of comments or before March 27 th , 2015	\$
No5	Section 4 sub-section 4.2 <i>OPTION*</i>	Preliminary report of activity #2		\$
No6		Final report of activity #2 Presentation of Activity #2		\$
2015-2016				
No7	Section 4 sub-section 4.1 <i>Including articles 4.1.2</i>	Preliminary report of activity #3	No later than November 1 st , 2015	\$
No8		Final report of activity #3 Presentation of Activity #3	No later than 5 days after receipt of the project manager's comments on the preliminary reports or before January 1 st , 2016	\$
TOTAL				\$

** Items No.5 and No. 6 are considered as options, the prices submitted for them will be used in the financial evaluation; however they will not be a part of the initial contract.*

If deemed necessary and in order to add items No5 and No6, the contracting authority will exercise an amendment later on, at the request of the Technical Authority.