



**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:**

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**LETTER OF INTEREST
LETTRE D'INTÉRÊT**

Comments - Commentaires

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

Title-Sujet High Resolution Imagery Acquisition Acquisition d'images à haute résolution		
Solicitation No. - N° de l'invitation 23240-161141/A	Date 2016-05-11	
Client Reference No. - N° de référence du client 23240-161141		
GETS Reference No. - N° de référence de SEAG PW-16-00729541		
File No. - N° de dossier 003ST.23240-161141	CCC No./N° CC - FMS NO. / N° VME	
Solicitation Closes - L'invitation prend fin at - à 5:00 PM on - le 2016-07-29		Time Zone / Fuseau horaire Eastern Daylight Time (EDT) / Heure avancée de l'Est (HAE)
F.O.B. - F.A.B. Plant-Usine : <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input checked="" type="checkbox"/>		
Address Enquiries to: - Adresser toutes questions à: Crncan, Adriana		Buyer Id - Id de l'acheteur 003ST
Telephone No. - N° de téléphone 873-469-4449		FAX No. - N° de FAX 819-997-2229
Destination of Goods, Services and Construction: Destinations des biens, services et construction : Specified Herein Précisé aux présentes		

Instructions : See Herein

Instructions : voir aux présentes

Issuing Office - Bureau de distribution
Informatics and Telecommunications Systems
Procurement Directorate/
Direction de l'acquisition de systèmes
informatiques et de télécommunications
11C1, Phase III
Place du Portage
11 Laurier St. / 11, rue Laurier
Gatineau, Québec
K1A 0S5

Delivery Required - Livraison exigée See Herein - voir aux présentes	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



REQUEST FOR INFORMATION (RFI)
for
High Resolution Imagery Acquisition

THIS IS *NOT* A REQUEST FOR PROPOSAL, QUOTATION, OR INVITATION TO BID NOTICE.

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1. INTRODUCTION

Public Works and Government Services Canada (PWGSC), on behalf of Natural Resources Canada (NRCan), is releasing this Request for Information (RFI) as a first step to inform industry and to seek input of the possible procurement of a National Coverage Imagery and an Open Imagery of Canada both downloadable and hosted online with associated web access services.

Engagement provides Industry with the opportunity to present their capabilities and considerations regarding Canada's requirements for a National coverage Imagery and an Open Imagery of Canada. Canada may use the information gathered to determine changes that should be included that will meet its needs and be consistent with Industry standard practices.

The Industry Consultative Process begins following the publication on Buy and Sell of the Request for Information (RFI) Package, and concludes with the dissemination of the RFI Findings Document. The Industry Consultative Process will also include One-on-One Industry Meetings, submission of RFI Responses and Post RFI Response Submission Meetings (if required).

Following One-on-One Industry Meetings, the next step will be for the Respondents to submit their responses to this RFI. Once responses are received and reviewed by Canada, Respondents may be invited to present and/or explain their responses at a Post RFI Response Submission Meeting with representatives of Canada, in Ottawa if required.

Industry Engagement Questions are included with this RFI to provide Industry the opportunity to review and prepare written comments which may serve to facilitate this consultation process. The Rules of Engagement for this Industry Consultative Process can be found at Annex "B", Engagement Participation Form.

2. BACKGROUND

Within the federal Government of Canada, there has been a continuous effort to make available the most cost-effective optical satellite imagery at national coverage. Over time this has included a national coverage Landsat Mosaic (15m resolution, circa 2000), and national coverage SPOT 4/5 data (10m resolution, circa 2007). Despite being out of date and of variable quality, these open datasets continue to be amongst the most highly utilized optical satellite datasets across Canada. The capabilities of next generation satellite sensors could greatly improve upon these national coverages.

Over the last several years, a collection of National Master Standing Offers (NMSOs) has been in place to facilitate the licensing of high resolution optical satellite imagery to the Canadian federal government. These NMSOs have been used to acquire a large amount of satellite imagery with a significant coverage of Canada's landmass, albeit with a high degree of overlap.

Presently, Natural Resources Canada (NRCan) is establishing the key components for a data environment for the sharing and analysis of geospatial data. Core elements of this shared data environment include the Federal Geospatial Platform (FGP) and the Earth Observation Data Management System (EODMS). These two portals could greatly increase the productivity and capacity of the federal government with respect to geospatial analysis through the availability of high resolution optical satellite imagery at a national coverage.

3. REQUEST FOR INFORMATION (RFI)

"Respondents" to the RFI are defined as companies or consortia of companies with the capabilities to deliver the requirements identified in this document. Respondents wishing to participate in this consultative process must complete, sign and return the Engagement Participation Form, along with its Appendices, to the Procurement Authority identified in Section 13, below. Upon receipt of the Engagement Participation Form, a meeting time will be allocated to each registering Respondents.

Should the Respondents request a different date and/or time for their One-on-One Industry meeting, Respondents has to send a formal request to the Procurement Authority identified in section 13, below. If the requested meeting date and/or time by the respondent are not feasible, the Procurement Authority will then propose a new date and time agreeable to both Canada and the Respondent.

The information provided by Respondents may be used to refine the current requirement, the procurement strategy and/or the project cost envelope. The information gathered through the RFI may also be used to assist Canada in the development of the competitive Request for Proposal (RFP).

The Respondents are invited to submit a reply to the RFI that addresses each of the topics identified in Annex "A", Industry Engagement Questions.

3.1. Recommendations, Suggestions or Comments

Respondents are invited to provide general feedback and/or any recommendations, inputs or comments (including technical and/or costing information) that could assist Canada in the refinement of the requirement.

3.2. Contractual Information and Procurement Process

Should Canada move forward with the procurement process (after closing of this Industry Consultative Process), the RFP will include the resulting contract, the mandatory and point rated evaluation criteria, certifications, basis of payment and all other required documents. The RFP will be posted on the BuyandSell.gc.ca website.

It is anticipated that 2035 (2016-04-04), General Conditions – Higher Complexity - Services will apply to any resulting contract.

3.3. Security Requirements

The security requirements are still to be determined.

4. REQUIREMENT DESCRIPTION

On behalf of the federal government, NRCan is seeking high resolution optical satellite imagery and services. To meet the requirements of the Contract, the Contractor must provide the following:

-
- A. High resolution optical imagery covering the landmass of Canada henceforth referred to as National Coverage Imagery to serve the needs of the federal, provincial and territorial governments. The National Coverage Imagery will be discovered and accessed through the following components: Web Portal Imagery, a Web Coverage Service and a Geographical Prioritization System.
 - B. Optical imagery covering the landmass of Canada to serve the needs of all Canadians, henceforth referred to as Open Imagery of Canada. The Open Imagery of Canada will be discovered and accessed through the following components: a File Transfer Protocol and a Web Mapping Service.

NRCan acknowledges that it is possible that these items (A and B) have differing resolutions. It is anticipated that up to two (2) contracts may be awarded for this requirement.

5. REQUESTED INFORMATION

Respondents are invited to consult Annex “A”, Industry Engagement Questions, and Attachment 1 – Draft Statement of Work for Industry Comments, in order to provide their response(s) to the requested information.

To facilitate the review of the responses, Respondents are asked to address and present the requested information in the order in which the topics are presented.

6. NOTES TO INTERESTED RESPONDENTS

The RFI is not a bid solicitation and does not constitute a commitment, implied or otherwise, that the Government of Canada will take procurement action in this matter. The issuance of the RFI does not create an obligation for Canada to issue a subsequent RFP, and does not bind Canada legally or otherwise, to enter into any agreement or to accept any suggestions from Respondents. Canada reserves the right to accept or reject any or all comments received.

Further, Canada will not be responsible for any cost incurred by Respondents in furnishing responses.

A review team composed of representatives of Canada will review the responses on behalf of Canada. Canada may also use an independent consultant or any Government resources, including representatives from provincial and territorial governments, that it considers necessary to review response(s). Not all members of the review team will necessarily review all responses. If required, the independent consultant(s) and representatives from provincial and territorial governments will sign a non-disclosure agreement before they review any response or participate in One-on-One Industry Meetings. Canada will provide their information via an amendment to this RFI.

There will be no short listing of firms for purposes of undertaking any future work, as a result of this RFI. Similarly, participation in the RFI is not a condition or prerequisite for participation in any RFP(s).

6.1. Confidentiality

Respondents are advised that any information submitted to Canada in response to this RFI may be used by Canada in the finalization of a competitive RFP. However, the Government is not bound to accept any Expression of Interest or to consider it further in any associated documents such as an RFP.

All industry consultations will be documented and this information is subject to the Access to Information Act. Respondents should identify any submitted information that is to be considered as either company confidential or proprietary. Canada will not reveal any designated confidential or proprietary information to public and/or third parties, except for independent consultant(s) which may participate in RFI response review.

7. INDUSTRY CONSULTATION MEETINGS

7.1. One-on-One Industry Meetings

A maximum of three (3) hours One-on-One Industry Meetings, with representatives of Canada, will be held at the date and time provided by the Procurement Authority. It is the responsibility of Respondents to confirm the date and time of their meeting, as well as their attendance.

These time-limited meetings will provide an opportunity for Respondents to seek clarification and to present technical input for the upcoming requirement. Respondents are encouraged to provide a demonstration of their current system(s) during their One-on-One Industry Meeting. Respondents are asked to please refrain from using their One-on-One Industry Meeting as a forum for marketing purposes.

Registration for participation to this Industry Consultative Process or One-on-One Industry meeting is required on/or before May 20, 2016.

Respondents are limited to send a maximum of four (4) representatives. Upon registration, a meeting time will be allocated to each registering Respondents on a first come first served basis. To register, please complete, sign and return the Engagement Participation Form along with its Appendices, attached at Annex "B", to the Procurement Authority identified in Section 13.

Following the submission of responses to Canada, Respondents may be invited to present their responses at a Post RFI Response Submission Meeting with representatives of Canada. The Post RFI Response Submission Meetings will be occurring at government facilities within the National Capital Region and will be held at a date and time agreeable to both Canada and the Respondents.

Participation at this consultative process is not required in order to submit a response to the RFI nor any follow-on RFP.

7.2. Location of the One-on-One Industry Meetings

The One-on-One Industry Meetings will be held at the following address (take note that meetings can be conducted by Teleconference):

To be provided to Respondents at time of registration (within the National Capital Region).

7.3. Additional Industry Consultation Meetings

Canada may request or consider Respondents' requests for additional one-on-one meetings, either in person or by teleconference. In person meetings will occur at government facilities within the National Capital Region. Meetings may be held at the Respondent's facilities at the sole discretion of Canada. In addition, Canada reserves the right to conduct such meetings beyond the closing date identified in this Notice or until further notice. To arrange a meeting, please contact the Procurement Authority.

All substantive and non-proprietary questions and answers discussed during these meetings will be noted and made available to all Respondents participating in the Industry Consultation Process. Questions may be edited, so that the proprietary nature of questions is eliminated.

8. DELIVERY ADDRESS AND RESPONSE FORMAT

Responses to the RFI questions must be sent to the Procurement Authority, identified in Section 13 below, by E-mail. It is the sole responsibility of Respondents to confirm whether their RFI Responses have been successfully received by Canada.

The electronic file formats of the responses must be in either Adobe Portable Document Format (PDF)™ or in a file format that is readable by the 2003 Microsoft Office™ Suite.

Provision of an electronic version is preferred in order to facilitate the distribution of the RFI responses to the NRCan project team.

9. CLOSING DATE

RFI Responses should be submitted on or before June 10, 2016.

The closing date of this Industry Consultative Process is July 29, 2016, 17h00 EDT. RFI Responses received beyond this date may not be given further consideration.

10. RESPONSE EVALUATION AND INDUSTRY FOLLOW-UP

Following receipt of responses to this RFI, Canada will review responses received for the purpose of refining its way forward on this requirement. In order to maintain awareness within the bidding community for this requirement, PWGSC will publish a RFI findings document.

The RFI findings document may include, but is not limited to, the following information:

- the number of firms that participated
- the identification of firms submitting responses
- a collective assessment on the responses received including anticipated changes, if any. Proprietary information will not be disclosed.
- an estimated schedule for any resulting procurement, as applicable; and,
- next steps.

The RFI findings document will be distributed to Respondents that submitted responses to this RFI only. It is anticipated that the RFI findings document will be distributed within three (3) months after the closing date of the RFI.

11. ENQUIRIES

All enquiries and other communications related to this RFI must be directed exclusively to the Procurement Authority identified in Section 13. Respondents that intend on responding to this RFI are asked to advise the Procurement Authority of their intention to respond, in order that they may be notified of any changes to the notice on the PWGSC Buy and Sell website, which may occur during the posting period.

12. LANGUAGE

Responses and consultation meetings are to be provided / held in one of the two Official Languages of Canada (English or French).

13. PROCUREMENT AUTHORITY

All enquiries and other communications related to this RFI must be directed to the Procurement Authority as follows:

Adriana Crncan

Informatics and Telecommunications Systems Procurement Directorate
Services and Technology Acquisitions Management Sector
Public Works and Government Services Canada (PWGSC)
11 Laurier Street,
Gatineau, Quebec, Canada
K1A 0S5

Telephone Number: 873-469-4449

Fax: 819-997-2229

E-mail address: adriana.crncan@tpsgc-pwgsc.gc.ca

ANNEX “A” – INDUSTRY ENGAGEMENT QUESTIONS

The issuance of this RFI does not bind Canada legally or otherwise, to enter into any agreement or to accept any suggestions from Respondents. Be advised that Canada reserves the right to accept or reject any or all comments received.

QUESTIONS TO INDUSTRY

1.0 General Questions	
Q1.1	Are you presently able to meet all the requirements described in Attachment 1 to this RFI? If not, please indicate which requirements you cannot currently meet. If you anticipate having the capacity to meet these requirements at a future date, please indicate when.
A1.1	
Q1.2	Are the technical requirements and expectations of NRCan realistic? If not, please explain why and describe how you would propose modifying the requirement to make it more feasible.
A1.2	
Q1.3	Do you have any general comments regarding the technical requirements described in Attachment 1 to this RFI? The requested system is composed of many subsystems (WPI, WCS, WMS for example). What systems do you currently have, and which would you need to implement to meet the technical requirements?
A1.3	
Q1.4	What is your standard level of service with respect to website downtime (refer to section 2.1.2.4.1 of Attachment 1 to this RFI). Are you prepared to provide availability for 24/7 maintenance and support?
A1.4	
Q1.5	What mechanisms will you implement to assure that personal information such as user names and download statistics are secure? Will any of the user’s personal information (including but not limited to live data, statistics, backups, or archives) reside outside of Canada?
A1.5	
Q1.6	What is the optimal contract duration and why? Can more years or optional years be added? Do you know of similar contracts awarded nationally or internationally and their duration?
A1.6	
Q1.7	How do you envisage the role of the Administrator (Section 2.1.2.6.2 of Attachment 1 to this RFI)? Please explain the expected responsibilities of NRCan versus those of the Contractor with regard to this role.

A1.7	
2.0 National Coverage Imagery	
Q2.1	Refer to Section 2.1.1.10 Imagery Updates, of Attachment 1 to this RFI. Is your company able to annually update more than 20% of coverage of Canada’s landmass? If yes, what percentage of coverage is your company able to achieve? What would be the price impact of increasing the update percentage beyond 20%?
A2.1	
Q2.2	Refer to Section 2.1.1.12 Imagery Positional Accuracy, of Attachment 1 to this RFI. What is the precision range and average precision of your imagery inventory? If you have regional differences please detail where and why. What Digital Elevation Model have you used for orthorectifying the Standard Imagery?
A2.2	
Q2.3	Does your image inventory contain stereo pairs? If so, would an offer of image stereo pairs increase the cost of your proposal?
A2.3	
3.0 Web Portal Imagery (WPI)	
Q3.1	Refer to Section 2.1.2.3.7 Image Download, of Attachment 1 to this RFI. Please provide additional information on the download mechanism you envision for the WPI.
A3.1	
Q3.2	Refer to Section 2.1.2.3.8 Coordinate System and Horizontal Reference, of Attachment 1 to this RFI. Please provide additional information on available coordinate system and horizontal reference.
A3.2	
Q3.3	Refer to section 2.1.2.3 Image Search and Discovery Reference, of Attachment 1 to this RFI. Do you have any suggestions that would increase the search and discovery to the National Coverage Imagery?
A3.3	
Q3.4	Is your current WPI system compliant with none, some, or all of the requirements described in the “Web Content Accessibility Guidelines (WCAG) 2.0” available at https://www.w3.org/WAI/WCAG20/quickref/?showtechniques=11 ? If your answer is some, please specify which requirements are not met. Is your WPI bilingual? If not, please indicate if it is your intention to make it bilingual and how much time would be needed to do so.
A3.4	

4.0 Open Imagery of Canada	
Q4.1	For the Tiled Mosaic of Canada, while respecting the acquisition periods, would it be possible to create a completely “leaf on” or “leaf off” Tiled Mosaic of Canada?
A4.1	
Q4.2	Do you have any suggestions that would increase the discovery of or access to the Open Imagery of Canada?
A4.2	
Q4.3	For the Tiled Mosaic of Canada, some of the provinces would like to receive the images in their specific reference systems. What would be the cost associated with such requirements per province for one reference system?
A4.3	
Q4.4	We would like to support many reference systems/projections via a Web Mapping Tiling System. Do you have economical or technical suggestions for this requirement?
A4.4	
5.0 Procurement Strategy and Evaluation Criteria	
Q5.1	Can you provide any suggestions that, in your opinion, could assist Canada in the development of the evaluation criteria and/or the basis of selection of the Contractor?
A5.1	
Q5.2	By providing examples, can you identify what evaluation criteria should be used by Canada in order to align these requirements with industry’s best practices (can be mandatory, point rated or optional criteria)?
A5.2	
6.0 Basis of Payment	
Q6.1	What is your standard business model for payment for a 1-5 year contract? Is it possible to obtain a perpetual license for products and services? What would be the payment modalities?
A6.1	
Q6.2	Canada is considering some options with respect to payment distribution. Hypothetically, should Canada decide on a 3-year contract, please specify your existing distribution of payment models for a 3 year period. Please explain, based on standard business practice, how this basis of payment is justified for this type of procurement. Can you give examples of other procurements (nationally or internationally) which use the same basis of payment? Note that basis of payment could be different for the National Coverage Imagery and the Open Imagery of Canada.

A6.2	
Q6.3	What cost savings could be expected with your identified payment models? What are the advantages of a multi-year contract?
A6.3	
Q6.4	What other change(s) can you recommend to reduce the overall costs of this requirement? Feel free to propose suggestions that may help Canada to refine its way forward on these requirements.
A6.4	
Q6.5	With respect to sub-licenses a-m (for provinces/territories), would you have any objection to licensing the imagery and services based on the area or size of the province/territories as well as a metric based on a combination of population and area, so as not to unduly charge sparsely populated jurisdictions like the 3 territories?
A6.5	
Q6.6	<p>Could you provide a (confidential and non-binding) cost estimate for the duration of the contract as identified in your response to question 6.1 and in compliance with the technical requirements for the National Coverage Imagery?</p> <p>Please take the following into consideration:</p> <ul style="list-style-type: none"> • Length of the contract (e.g. 1yr, 3yr, 5yr, perpetual) • Imagery Resolution • Imagery Cost for Licence I : The cost in dollars for only licencing the imagery (no WPI and WCS services) as described in Attachment 1 of this RFI for the specified resolution. For the licence, two price lists are requested: firstly, a price for the imagery using the Base Licence I for the Federal Government; secondly, a price for each imagery Sub-licence “a-m” (13 provinces and territories). Please separate the cost of the Standard Imagery and the cost of the FSI, if it’s not a bundle price. • Services Cost WPI & WCS: The cost in dollars for hosting the WPI and WCS services (excluding the imagery licence cost) as described in the RFI. For the services, two price lists are requested: firstly, a price for the services under the Base Licence I for the Federal Government; secondly, a price for each sub-licence “a-m” (13 provinces and territories). • Imagery Description: Detailed description of the imagery used to populate the National Coverage Imagery at this resolution. The description must include the following information: <ul style="list-style-type: none"> o What is (are) the sensor type(s) (name)? o What are the spectral bands? o Is it possible to acquire stereo pairs? o What is the number of images in your inventory (Standard Imagery and FSI)? o What is the date range of your image inventory? o Do you offer a homogenous coverage of the country for the resolution specified? If not, do you cover at least the high priority region (Region A)

	<p>as described in Appendix A of the RFI? At which resolution do you cover the remaining part of the country (Region B)?</p> <ul style="list-style-type: none"> o Do the sensors cover all the country or are there any “blackout regions” due to sensor orbital mechanics? If you do not cover all the country please specify the “blackout region.”
A6.6	
Q6.7	<p>Could you provide a (confidential and non-binding) cost estimate for the duration of the contract as identified in your response to question 6.1 and in compliance with the technical requirements for the Open Imagery of Canada?</p> <p>Please take the following into consideration:</p> <ul style="list-style-type: none"> • Imagery Resolution: The three following resolutions: <=10m, <=5m and <=2.5m • Imagery Cost for Licence II: The cost in dollars for only licencing the imagery (no WMS and FTP services) for a base licence II (open data) as described in the RFI. Please separate the cost of the Tiled Mosaic of Canada, the Standard Imagery and the FSI, if it’s not a bundle price. • Service Cost WMS & FTP: The cost in dollars for hosting the WMS and FTP (excluding the imagery licence cost) as described in the RFI. • Imagery Description: Detailed description of the imagery used to create the Open Imagery of Canada at this resolution. The description must include the following information: <ul style="list-style-type: none"> o What is (are) the sensor type(s) (name)? o What are the spectral bands? o Do you offer a homogenous coverage of the country for the specified resolution? If not, do you cover at least the high priority region (Region A) as described in Appendix A of the RFI? At which resolution do you cover the remaining part of the country (Region B)? o Do the sensors cover all the country or are there any “blackout regions” due to sensor orbital mechanics? If you do not cover all the country please specify the “blackout region.”
A6.7	
Q6.8	Please provide any additional information that would be of interest to NRCan regarding a future procurement.
A6.8	

APPENDIX A to Annex A

Map of High Priority Areas Across Canada



High priority areas are shown in orange (Region A) and low priority areas are shown in grey (Region B).

ANNEX "B" – ENGAGEMENT PARTICIPATION FORM (1/3)

In order to participate to this Industry Consultative Process, Respondents must complete, sign and return the following Participation Form, along with its appendices to the Procurement Authority identified in section 13, above.

Participant Name

Company Name

--	--

Participant Title

Business Address

Preferred language of communication	
English <input type="checkbox"/> French <input type="checkbox"/>	

Are you requesting a One-on-One Industry Meeting

		Number of Participant(s)
Yes		
No		

Additional Participant; name and title

#	Name	Title
1		
2		
3		

By signing this document, the individual represents that he/she has full authority to bind the company identified below and that the individual and the company agree to be bound by all the terms and conditions contained in Annex "B" – Engagement Participation Form and its appendices.

Signature
(I have the authority to bind the Company)

Date

Name (Print)

Title or Position (Print)

Appendix 1 to Annex "B" – Engagement Participation Form (2/3)

Rules of Engagement

An overriding principle of the Industry Consultative Process is that it be conducted with the utmost of fairness and equity between all parties. No one entity shall not receive nor be perceived to have received any unusual or unfair advantage over the others.

The Industry Consultative Process begins following the publication on Buy and Sell website of the Notice for RFI and concludes with the dissemination of the RFI Findings Document to participant or on the date indicated on the Buy and Sell website, whichever occurs first. The Industry Engagement Process will consist of the following events:

- Buy and Sell Posting of the Notice for RFI Package Release;
- One-on-One Industry Meetings;
- Submission of RFI Responses;
- Post RFI Response Submission Meetings, if required; and,
- Release of RFI Findings Report to participants only.

At any point within the Industry Consultative Process, the above listed Industry Engagement events or their scheduling may change. Except for changes brought on an unforeseen events or adverse weather, a minimum five (5) calendar day notice will be provided to participants of any planned change. One-on-One Industry Meeting will be held at a location within the National Capital Region.

Following the release of the Request for Information, all written information provided by Canada with respect to this industry engagement will be provided only to those entities that have signed the Rules of Engagement Terms and Conditions identified below.

Rules of Engagement Terms and Conditions

- a) Participants wishing to participate in this Industry Consultative Process, as well as to attend One-on-One Industry Meetings must register on/or before the date indicated at Section 7.1 - One-on-One Industry Meetings;
- b) Participants are expected to discuss their views concerning the requirement and to provide positive resolutions to the issues in question. Each participant shall be provided equal opportunity for information exchange, and in the submission of questions;
- c) Participants will NOT reveal or discuss any information to the MEDIA/NEWSPAPERS regarding this requirement during this Industry Consultative Process. If participants receive a question from the Media, participants are to direct the Media to contact the PWGSC Media Relations Office at 819-956-2313;
- d) Participants are to direct inquiries and comments only to authorized representatives of Canada, as directed in notices given by the Procurement Authority from time to time. Any communication to unauthorized representatives of Canada may be subject to full disclosure by Canada to all Participants;
- e) The number of persons from any one Participant (company, consortia, bidding team, joint venture) is limited to four (4) persons for the One-on-One Industry Meetings and/or the Post RFI Response Submission Meetings;
- f) Media cannot participate in this Industry Consultative Process;
- g) Canada is not obligated to issue any RFP, or to negotiate any contract for any of the requirements or phases to be identified during this Industry Consultative Process;
- h) Throughout the entire Industry Consultative Process, all questions from industry, exchanges of information and all of the industry feedback shall be provided in writing to the contracting Authority. In accordance with and

subject to the *Access to Information Act, R.S., 1985, c. A-1*, and any other legislative or legal requirement, all information which is provided by a Participant and which is clearly marked as "Proprietary" will not be released or disclosed;

- i) Proceedings from the One-on-One Industry Meetings will be recorded. Questions and answers raised from these meetings may be summarized and provided to all Participants. In order to establish better communications between Canada and Industry, and also to increase the accuracy of information gathered during the One-on-One Industry Meetings, Respondents will be requested to submit the list of questions posed during the meeting to the Procurement Officer no later than five (5) business days after the meeting;
- j) If Canada does release an RFP, the terms and conditions will be subject to Canada's absolute discretion;
- k) Canada will not reimburse any Participant for any cost incurred in participating in this Industry Consultative Process;
- l) Participation in this Industry Consultative Process will not be a mandatory requirement for any subsequent RFP. An entity will not be precluded from submitting a proposal under any subsequent RFP on account of they not being a Participant;
- m) Failure of an entity to agree to and sign the Engagement Participation Form will result in exclusion of the entity from participation in the Industry Consultative Process, exclusion of the entity from participation in the One-on-One Industry Meetings, as well as exclusion of the entity from the provision of updates to the RFI documentation;
- n) A dispute resolution process to manage impasses throughout this Industry Consultative Process must be adhered to in accordance with Appendix 2 of Annex "B" – Engagement Participation Form, below. All requests to use the dispute resolution process must be directed to the Procurement Authority who will make the appropriate arrangements;
- o) At any point within this process, a Participant may provide notice to the Procurement Authority that they no longer wish to participate in the Industry Consultative Process. Upon the Procurement Authority's receipt of such notice, the Participant will not be scheduled for participation in any future event(s);
- p) If required, the Post RFI Response Submission Meetings will be held with only those Participants that have submitted a complete response to the RFI;
- q) Participation in the One-on-One Industry Meetings, and, or the Post RFI Response Submission Meetings is conditional on the Participant's formal acceptance of all of the above Rules of Engagement. This Engagement Participation Form must be signed by a duly authorized officer of the Participant in this respect; and,
- r) The RFI Findings Report will be distributed to all Participants including any which may have previously indicated that they no longer wish to participate in the Industry Consultative Process.

Signature
(I have the authority to bind the Company)

Date

Name (Print)

Title or Position (Print)

Company (Print)

Appendix 2 to Annex “B” – Engagement Participation Form (3/3)

Dispute Resolution Process

1. By informal discussion and good faith negotiation, each of the parties shall make all reasonable efforts to resolve any dispute, controversy or claim arising out of or in any way connected with this Industry Engagement Process.

2. Any dispute between the Parties of any nature arising out of or in connection with this Industry Engagement Process shall be resolved by the following process:
 - a) Any such dispute shall first be referred to the Participant's Manager and the PWGSC Manager managing the Industry Engagement Process. The parties will have 3 Business Days in which to resolve the dispute.
 - b) In the event the representatives of the Parties specified Article 2.a. above are unable to resolve the dispute, it shall be referred to the Participant's Senior Representative responsible for this project and the PWGSC Senior Director of the Division responsible for managing the Industry Engagement Process. The parties will have 3 Business Days to resolve the dispute.
 - c) In the event the representatives of the Parties specified in Article 2.b above are unable to resolve the dispute, it shall be referred to the Participant's Senior Representative responsible for this project and the PWGSC Director General, who will have 3 Business Days to resolve the dispute.
 - d) In the event the representatives of the Parties specified in Article 2.c. above are unable to resolve the dispute, it shall be referred to the Participant's CEO and the PWGSC Assistant Deputy Minister, Acquisitions Branch who will have 5 Business Days to resolve the dispute.
 - e) In the event the representatives of the Parties specified in Article 2.d. above are unable to resolve the dispute, the Procurement Authority shall within 5 Business Days render a written decision which decision shall include a detailed description of the dispute and the reasons supporting the Procurement Authority's decision. The Procurement Authority shall deliver a signed copy thereof to the Participant.

Signature
(I have the authority to bind the Company)

Date

Name (Print)

Title or Position (Print)

Company (Print)

Attachment 1 – Draft Statement of Work for Industry Comments

Technical Requirements for National High Resolution Satellite Imagery and Services

Attachment 1 – Draft Statement of Work for Industry Comments

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Key Definitions and List of Acronyms

Administrator (Role) – The administrator role is limited to a group of identified individuals in the employ of the federal government of Canada who will play administrative roles in the management of the Web Portal Imagery (WPI) and the Web Coverage Service (WCS) data and services established via this contract.

Bit depth (image) – Term used to represent the total number of bits used multiplied by the number of total channels. For example, a typical colour image using 8 bits per channel is often referred to as a 24-bit colour image (8 bits x 3 channels). Colour scanners and digital cameras typically produce 24 bit (8 bits x 3 channels) images or 36 bit (12 bits x 3 channels) capture, and high-end devices can produce 48 bit (16 bit x 3 channels) images. A grayscale scanner would generally be 1 bit for monochrome or 8 bit for grayscale (producing 256 shades of gray).

Canadian Business Hours (Standard) – Refers to the hours of 8h30-17h00 local time, Monday through Friday, in all of the Canadian time zones, excluding statutory holidays.

Earth Observation Data Management System (EODMS) – Canadian federal government portal to deliver Earth Observation data amongst government departments and other jurisdictions (subject to product licensing). Successor system to NEODF.

Full Satellite Imagery – Full satellite imagery denotes satellite imagery containing all imagery bands and without any relative radiometric balancing corrections or compression as well as the appropriate metadata describing that imagery.

Federal Geospatial Platform (FGP) – Canadian Federal government portal to deliver geospatial data amongst government departments and other jurisdictions (subject to product licensing).

Geo-referenced Imagery – Refers to the imagery that is tied to the ground locations through a map projection or coordinate system.

GeoTIFF – Refers to TIFF files which have geographic (or cartographic) data embedded as tags within the TIFF file. The geographic data can then be used to position the image in the correct location and geometry on the screen of a geographic information display.

High resolution optical imagery – Imagery with a spatial resolution less than 5m.

Image refers to a picture taken by a space borne remote sensing system represented in a digital format.

Metadata – Refers to any data other than the imagery itself, which provides information that describes the imagery. It might include: geo-coding information, acquisition time, associated ground truthing, sensor configuration, sensor geometry, satellite ephemeris, and other ancillary information which further describes the specific Product. Metadata may be implicitly part of header or Product structure, or may simply be an attached file supplied as part of the Product.

Nadir – Refers to the downward-facing viewing geometry of an orbiting satellite.

National Earth Observation Data Framework (NEODF) – Canadian federal government portal to deliver Earth Observation data amongst government departments and other jurisdictions (subject to product licensing). Precursor to EODMS.

Off-Nadir – Any point not directly beneath a scanner’s detectors, but rather off at an angle.

Pansharpening – Process of merging high-resolution panchromatic and lower resolution multispectral imagery to create a single high-resolution colour image. Pansharpening produces a high-resolution colour image from three, four or more low-resolution multispectral satellite bands plus corresponding high-resolution panchromatic bands.

Product – Product refers to imagery products obtained through the services described in this statement of work, but does not refer to the services themselves. Product includes both Standard Imagery, Full Satellite Imagery, and Tiled Mosaic of Canada.

Standard Imagery – Standard Imagery products are generally simpler representations of satellite imagery allowing non-specialized users to access/use the imagery or allowing improved viewing capabilities for the imagery through web services amongst other possibilities. Standard Imagery may differ from Full Satellite Imagery in a variety of ways, including:

- The removal of near infrared or mid infrared bands so as to produce a simpler version of the imagery that can be displayed as a RGB true colour image
- Compression and or scaling of the imagery into a JPEG or similar image format for the purposes of web-viewing
- Performing relative radiometric balancing to reduce seams in adjacent satellite images

User (Role) - The user role is limited to a group of identified individuals in the employ of the federal government of Canada, Provinces and Territories. The user role gives an individual access to the Web Portal Imagery and the Web Coverage Service through an account.

Web Coverage Service (WCS) – Provides access to web coverage data in forms that are useful for client-side rendering or as inputs into third party systems, such as Geographic Information Systems (GIS) applications and scientific models. A WCS is functionally similar to a WMS except that a WMS returns static maps/images whereas the WCS provides the available data in its true geospatial format.

Web Mapping Service (WMS) - Provides access to web coverage data in forms that are useful for client-side rendering. A WMS is functionally similar to a WCS except that a WMS returns static maps/images whereas the WCS provides the available data in its true geospatial format.

Web Mapping Tile Service (WMTS) – A standard protocol for serving pre-rendered georeferenced map tiles over the internet as developed and first published by the Open Geospatial Consortium.

Web Portal Imagery (WPI) – National Coverage Imagery hosted on Contractor’s web portal.

1 Scope

1.1 Objective

This Statement of Work (SOW) describes the requirements for the procurement of a National Coverage Imagery and an Open Imagery of Canada both downloadable and hosted online with associated web services.

1.2 Background

Within the federal Government of Canada, there has been a continuous effort to make available the most cost-effective optical satellite imagery at national coverage. Over time this has included a national coverage Landsat Mosaic (15m resolution, circa 2000), and national coverage SPOT 4/5 data (10m resolution, circa 2007). Despite being out of date and of variable quality, these open datasets continue to be amongst the most highly utilized optical satellite datasets across Canada. The capabilities of next generation satellite sensors could greatly improve upon these national coverages.

Over the last several years, a collection of National Master Standing Offers (NMSOs) has been in place to facilitate the licensing of high resolution optical satellite imagery to the Canadian federal government. These NMSOs have been used to acquire a large amount of satellite imagery with a significant coverage of Canada's landmass, albeit with a high degree of overlap.

Presently, Natural Resources Canada (NRCan) is establishing the key components for a data environment for the sharing and analysis of geospatial data. Core elements of this shared data environment include the Federal Geospatial Platform (FGP) and the Earth Observation Data Management System (EODMS). These two portals could greatly increase the productivity and capacity of the federal government with respect to geospatial analysis through the availability of high resolution optical satellite imagery at a national coverage.

2 Requirements

On behalf of the federal government, NRCan is seeking high resolution optical satellite imagery and services. To meet the requirements of the Contract, the Contractor must provide the following:

- A. High resolution optical imagery covering the landmass of Canada henceforth referred to as **National Coverage Imagery** (Section 2.1) to serve the needs of the federal, provincial and territorial governments. The National Coverage Imagery will be discovered and accessed through the following components: Web Portal Imagery, a Web Coverage Service and a Geographical Prioritization System.
- B. Optical imagery covering the landmass of Canada to serve the needs of all Canadians, henceforth referred to as **Open Imagery of Canada** (Section 2.2). The Open Imagery of Canada will be discovered and accessed through the following components: a File Transfer Protocol and a Web Mapping Service.

NRCan acknowledges that it is possible that these items (A and B) have differing resolutions. It is anticipated that up to two (2) contracts may be awarded for these requirements.

Subsequent sections describe in full detail the technical requirements for the National Coverage Imagery and the Open Imagery of Canada.

2.1 National Coverage Imagery

With this Statement of Work, NRCan would like to move from an individual procurement approach to a global procurement approach for all the Federal and Provincial/Territorial governments. The National Coverage Imagery will fulfil this need by supplying updated, precise high resolution imagery and services of the landmass of Canada to the Federal and Provincial/Territorial governments.

This section covers the requirements for the imagery and the services.

2.1.1 Imagery Requirements

This section describes the requirements for the National Coverage Imagery.

2.1.1.1 Full Satellite Imagery

The Contractor must provide Full Satellite Imagery (FSI). The FSI denotes satellite imagery containing all imagery bands and without any relative radiometric balancing corrections or compression and with the maximum (full) bit depth as offered by the sensor. The FSI must be supplied with the appropriate metadata describing that imagery.

2.1.1.2 Standard Imagery

The Contractor must provide Standard Imagery. Standard imagery must include a colour representation of the visible spectrum. If the contractor is not offering a colour representation of the visible spectrum, the Contractor must use the process known as Pan Sharpening which is the combination of the multispectral data with the spatial information of the panchromatic data. If Pan Sharpening is used, the Contractor must offer a 3-band natural colour or true colour image. The Standard Imagery must be supplied with appropriate metadata as described in section 2.3. .

2.1.1.3 Imagery Electromagnetic (EM) Spectrum Coverage

The Standard Imagery electromagnetic spectrum must cover the visible spectrum so as to allow the visualization of conventional 3-bands RGB colour imagery. The Full Satellite Imagery must include all spectral bands for the selected satellite and sensor.

2.1.1.4 Simultaneous Mode

In the instance where the Contractor is offering multispectral images with the panchromatic images as a bundled product, the images must be taken in a simultaneous mode (taken at the same time).

2.1.1.5 Alignment of Panchromatic and Multispectral Imagery

In order to ensure alignment of panchromatic and multispectral images, the upper left and lower right corners of these images must share the same coordinates.

2.1.1.6 Imagery Minimal Resolution

The minimum resolution for imagery must be 5.0m or better.

2.1.1.7 Imagery Radiometric Corrections

Basic corrections must be applied to the Standard Imagery and the FSI. The imagery must be corrected for radiometric distortions, internal sensor geometry, optical distortions and sensor distortions.

2.1.1.8 Imagery Cloud Cover

The maximum allowable cloud cover percentage for Standard Imagery and FSI must be no greater than twenty percent (20%).

2.1.1.9 Coverage and Acquisition Period

The imagery must cover all Canada. The area to be covered includes the landmass and the islands of Canada buffered by 2 km.

The images must have been or be acquired with the following image acquisition periods which were established to favour active vegetation growth.

Annual acquisition period:

- South of 60th parallel: May to October
- North of 60th parallel (ground portion): June to September
- Artic Islands: Mid-July to mid-September

2.1.1.10 Imagery Updates

For the duration of the Contract, the Contractor must update at least 20% of the coverage of Canada's landmass on an annual basis with newly acquired imagery. The value of 20% is to be calculated on an area basis, without double-counting any overlap between image acquisitions during the year. Imagery updates must be done according to all the requirements specified in this document. Image acquisitions from the Geographical Region Prioritization System (Section 2.1.4) must be prioritized but will count towards the 20% update requirement. All the newly acquired imagery (updates) must be placed and available in the WPI (Section 2.1.2) and WCS (Section 2.1.3).

2.1.1.11 Imagery Off-Nadir Look Angle Requirements

The maximum allowable off-nadir look angle is 25 degrees.

2.1.1.12 Imagery Positional Accuracy and Georeferencing

For the Standard Imagery (geo referenced images or orthoimages), the absolute positional accuracy must be 25 metres or better. A positional accuracy of 5 metres or better is desired.

For the Standard Imagery collected through the imagery update (Section 2.1.1.10), the Contractor must use the Canadian Digital Elevation Data (CDED), available at <http://geogratis.gc.ca/> or the best DEM that will be publically or privately available to orthorectify the Standard Imagery.

2.1.2 Web Portal Imagery

The Contractor must provide an externally provided/hosted web portal for discovery and access to national coverage high resolution satellite imagery. This portal must provide the ability to view and download high resolution satellite imagery for the Users of the system.

The Contractor must establish fully functional and operational Web Portal Imagery (see 2.1.2.1.) The Web Portal Imagery (WPI) can be an existing system, an adaptation/configuration of an already existing system, or a newly developed system. The WPI can be a commercial or an open source solution or a combination of both. The following sub sections define in detail the requirements of the Web Portal and the imagery content.

2.1.2.1 Imagery Content

The WPI must offer all the Standard Imagery and the FSI as described in the imagery requirements (Section 2.1.1). The WPI must include all acquisitions from these satellite imaging systems for the landmass of Canada as described in the Coverage and Acquisition Period (Section 2.1.1.9).

2.1.2.2 Account management

With respect to user accounts, the WPI must support the management of at least two (2) different roles: *User Role* and *Administrator Role*. The Contractor must work with NRCan to create a role and privilege grid, defining roles and responsibilities specific to the Contractor's web portal functionality, along with information regarding access rights to data and imagery.

2.1.2.2.1 *User Role*

The *User Role* must allow a user to make image searches and downloads.

2.1.2.2.2 *Administrator Role*

The *Administrator Role* includes all the privileges of the User Role and must allow for the administrator to create new users, access the statistics modules, and identify regions for prioritized imagery acquisition (Section 2.1.4).

2.1.2.3 Image Search and Discovery

The following sections describe the needs with respect to image search and discovery for the WPI.

2.1.2.3.1 *Non Spatial Search*

The WPI must allow images to be searched on the following criteria:

- Image acquisition date range
- Name of Satellite
- Resolution
- Image bands available
- Toponyms
- Maximum cloud cover percentage
- Maximum off nadir viewing angle
- Type of imagery (Standard Imagery or FSI), and
- National Topographic Sheet number at the scales of 1/50 000 and 1/250 000).

2.1.2.3.2 *Spatial Search*

The WPI must allow for spatial search, where the user can either manually enter (key in) geographic coordinates (e.g. latitude-longitude, Universal Transverse Mercator (UTM) northing/easting and UTM zone) or, graphically select an area in a spatial graphical window. The graphical area must allow both selections: a rectangle and an arbitrary polygon.

2.1.2.3.3 *Spatial and Non-spatial Search*

The WPI must have the capacity to simultaneously combine Non Spatial and Spatial search capabilities as described in the two preceding sections (above).

2.1.2.3.4 *Spatial Graphical Window*

The spatial graphical window of the WPI must support the following features:

- Pan and zoom
- Drawing of a point, line and polygon;
- Selection of different backdrops
- Scale and display of geographic coordinates (e.g. latitude-longitude);
- Measuring tools (length and area)
- Printing of the graphical window; and
- Links to metadata records.

2.1.2.3.5 *Search Results*

The WPI must display the search results in the form of a list and display the spatial location of each result in the graphical window. For each result, the user must be able to select and to display the complete metadata. The metadata requirements are defined in section 2.2.3.6. The user must also be able to search the “search results,” rather than searching the entire content of the inventory.

2.1.2.3.6 *Search Basket*

In the WPI, the User must be able to place its search selection in a search basket or cart mechanism.

2.1.2.3.7 *Image Download*

From the content of the search basket, the User must be able to select images to download. From that selection, the images may be downloaded directly or ordered using a secure user-controlled protocol (i.e. FTP or similar).

2.1.2.3.8 *Coordinate System and Horizontal Reference system*

For the Standard Imagery, the WPI must at least offer two projection coordinate systems: the Lambert Conformal Conic (LCC) projection (epsg: 3979) and the Universal Transverse Mercator

(UTM) projection (epsg: 26903 to epsg: 26922). If the image covers two UTM zones, the User must have the possibility to choose the zone number. The WPI should offer the imagery in other projections.

The horizontal reference systems to be used must be North American Datum 1983 (NAD83) Canadian Spatial Reference System (CSRS) - North American Datum 1983 and Geodetic Reference System 1980 (GRS80), with the reference ellipsoid.

2.1.2.3.9 File Format

For the Standard Imagery, the WPI must offer the imagery in a true RGB representation of the visible spectrum bands or a pansharpened image in the three standard image formats (JPG, PNG, GeoTiff). For the FSI, the WPI must offer the imagery as greyscale GeoTIFFs for each band that is included in the image, or, as a GeoTIFF with a 3-band (RGB) representation of the visible spectrum bands within the image along with greyscale GeoTIFFs for the remaining bands.

2.1.2.4 Web accessibility

The following sections describe the need in terms of web accessibility for the WPI.

2.1.2.4.1 Web site availability

The WPI must be available on a 24/7 basis. The average annual uptime must be better than 98%. In case of downtime the Contractor must restore operational service within the next day (24 hours).

The WPI must offer full functionality in the following web browsers with the version stated (or newer releases); Internet Explorer 11, Mozilla Firefox (v41), Safari 8, and Google Chrome (v37.0.2062)

2.1.2.4.2 Download Capacity

The WPI will be widely used for downloading images. Images are often very large and it can take a lot of time to download. As an example, a 3-band high resolution image of 100 km² can contain up to 1GB of data.

At minimum, the WPI must be able to support the download of 1000 images (100 000 km²) per day or 1 TB of data per day, whichever is greater, from their service centre. Bandwidth issues for clients on the receiving end are not the responsibility of the Contractor.

2.1.2.4.3 Web Site Security

The WPI is to be accessed through User Name/Password, with an understanding that adequate security measures must be implemented in the WPI. NRCAN will identify one or more Administrator accounts (Section 2.1.2.2.2) to manage and verify valid accounts.

2.1.2.4.4 Password Security

The access to the WPI must be protected by password. Each User must be able to have a unique individual password. The password security system must be configurable in order to allow the following password configurations:

- Specific length of password
- Use of special characters, uppercase, lowercase, and/or numbers

The password security management system must be part of the functionality of the WPI.

2.1.2.4.5 Technical Help Desk

The Contractor must supply a technical help desk that can be reached by phone and by email. During Canadian Business Hours for all provinces and territories (see definition), for a phone call request, the help desk must answer back within 3 regular business hours. For an email request, the help desk must answer by the next working day. When the helpdesk is not able to address the issue within 3 days it must give an evaluation of the problem to the Administrator and the User who identified the issue as well as a proposed schedule to address the issue.

2.1.2.5 System Security

Since the system will contain private information, including user account names and passwords, the Contractor must incorporate security measures in order to protect and assure the integrity of the systems and the information they hold, specifically the identification of the User and Administrator accounts and the statistics of usage associated with these accounts. These security measures must effectively provide physical and technical safeguards that will protect the information from unauthorized access, alteration, deletion, and transmission.

2.1.2.6 Statistics

From an Administrator account (Section 2.1.2.2.2), the WPI must be able to extract statistics on the inventory of the downloaded images and create Microsoft Excel based reports. Alternatively, the Contractor must establish a system to provide usage statistics to an Administrator account on demand, with an anticipated frequency of monthly access to these statistics.

2.1.3 Web Coverage Service (WCS)

The Contractor must provide an externally provided/hosted interoperable Web Coverage Service for access to the National Coverage Imagery. The WCS can be the adaptation of an already existing system or the development of a new one. This service will be used among

others, in the implementation of the Federal Geospatial Platform. The WCS can be a commercial or an open source solution or a combination of both.

2.1.3.1 Imagery Content

The WPI must offer all the Standard Imagery and the FSI as described in the Imagery Requirements (Section 2.1.1).

2.1.3.2 Web accessibility

The following sections describe the web accessibility requirements for the web coverage service.

2.1.3.2.1 *Open Geospatial Consortium (OGC) Standards*

In order to increase the interoperability of the service accessing the national imagery, the imagery service must be compliant the OGC Web Coverage Service (WCS) Application Profile – Earth Observation (EO-WCS) [OGC 10 140r1] which defines a profile of the WCS [OGC 09-110r4].

2.1.3.2.2 *Web Site Availability*

Same as *Web Site Availability* requirements at 2.1.2.4.1

2.1.3.2.3 *Download Capacity*

Same as *Download Capacity* requirements at 2.1.2.4.2

2.1.3.2.4 *Web Site Security*

Same as *Web Site Security* requirements at 2.1.2.4.3

2.1.3.2.5 *Password Security*

Same as *Password Security* requirements at 2.1.2.4.4

2.1.3.2.6 *Technical Help Desk*

Same as *Technical Help Desk* requirement at 2.1.2.4.5

2.1.4 Geographical Region Prioritization System

The geographical region prioritization system will allow an Administrator, to indicate to the Contractor that some imagery is missing, outdated, or otherwise does not meet the User's requirements (such as acquisition time, off-nadir angles, cloud cover, etc.). The Contractor must supply a geographical region prioritization system as it will be the official way by which the Administrator (on behalf of the Users) will transmit the priorities in terms of imagery needs.

Areas identified with the Geographical Region Prioritization System will be counted within the annual imagery update requirements (Section 2.1.1.10). NRCan acknowledges that because of orbit mechanics, weather conditions, and existing contractual obligations it may not always be possible to fulfill all imagery needs. Except where prohibited due to orbit mechanics, weather conditions, and existing contractual obligations, the Contractor must prioritize image acquisitions for the requested priority regions.

The geographical region prioritization system must be a component or incorporated in the WPI (Section 2.1.2).

The following sub sections define the requirements of the geographical region prioritization mechanism in greater detail.

2.1.4.1 Geographical Region Prioritization Ordering Capacity

An Administrator (Section 2.1.2.2.2) must have the capacity to prioritize one or more regions in Canada. The selection can be done graphically and/or by specifying the following criteria for the imagery:

- Choice of a specific sensor if more than one is available
- Choice of a specific date range that can be different than the one specified in the section 2.1.1.9
- Choice of a specific off-nadir angle tolerance different than the one specified in the section 2.1.1.11
- Choice between the Standard Imagery or the FSI
- Ability to identify a cloud cover tolerance different than the one specified in the section 2.1.1.8
- Ability to identify a priority level; to be taken into consideration where multiple priority areas are identified for a given region but only one (or more) of those priority regions can be acquired during a given orbit

Once confirmed, the selection falls in the Geographical Region Prioritization ordering account.

2.1.4.2 Geographical Region Prioritization Ordering Account Management

In its account or upon request, an Administrator must see both the filled and unfilled Geographical Region Prioritization orders, including the date of the order as well as the date the order was filled. For the unfilled orders, the Administrator must have the possibility to delete one (or more) orders with a notification of at least one business day in advance of planned acquisition. An Administrator (Section 2.1.2.2.2) must be able to export the content of an account in either a PDF and/or an Excel type of report.

2.1.4.3 Geographical Region Prioritization Order Fulfilment

Once an order is filled, an email must be sent to the Administrator who placed the order. The ordered image(s) must be placed in the WPI (Section 2.1.2) and the WCS (Section 2.1.3) as Standard Imagery or FSI as ordered.

Prioritized geographical regions must take precedence over the regular image update mechanism (Section 2.1.1.10).

2.2 Open Imagery of Canada

In order to renew the collection of open images of Canada using updated data and finer spatial resolution, NRCan would like to acquire and offer to Canadians new Open Imagery of Canada containing the following 3 products: Tiled Mosaic of Canada, Standard Imagery (orthoimages), and Full Satellite Imagery (FSI) that meet the specifications set in the following sub-sections.

The Open Imagery of Canada is oriented toward mass distribution using simple and well known internet access methods. The Contractor must be able to supply the imagery and host the two following protocols: WMS and FTP.

2.2.1 Imagery Requirements

The following sections describe the imagery requirements for the Open Imagery of Canada.

2.2.1.1 Imagery Electromagnetic (EM) Spectrum Coverage

Same as *Imagery Electromagnetic Spectrum Coverage* requirements at 2.1.1.3

2.2.1.2 Simultaneous Mode

Same as *Simultaneous Mode* requirements at 2.1.1.4

2.2.1.3 Alignment of Panchromatic and Multispectral Imagery

Same as *Alignment of Panchromatic and Multispectral Imagery* requirements at 2.1.1.5

2.2.1.4 Imagery Radiometric Corrections

Same as *Imagery Radiometric Corrections* requirements at 2.1.1.7

2.2.1.5 Coverage and Acquisition Period

Same as *Coverage and Acquisition Period* requirements at 2.1.1.9

2.2.1.6 Imagery Updates

The Contractor must create one mosaicked, tiled image (snapshot) of the Open Imagery of Canada for each year of the Contract (Section 2.2), to be updated annually using the newly

acquired National Coverage Imagery (Section 2.1.1) following acquisition. The Contractor must update at least 20% of the coverage of Canada's landmass annually.

2.2.1.7 Imagery Off-Nadir Look Angle Requirements

The maximum allowable off-nadir look angle is 15 degrees.

2.2.1.8 Imagery Radiometric Correction

Same as *Imagery Radiometric Correction* Requirements at 2.1.1.7

2.2.1.9 Coordinate System and Horizontal Reference System

For the Tiled Mosaic of Canada, the Contractor must create the images using the Latitude Longitude reference system (epsg:4617).

For the Standard Imagery, the Contractor must create the images using the Universal Transverse Mercator (UTM) projection (epsg:26903 to epsg:26922), if the image covers two UTM zones, the Contractor must use the UTM zones that cover the majority of the image.

For the Full Satellite imagery, the Contractor must keep the native reference system of the image (no reprojection).

For the Tiled Mosaic of Canada and the Standard Imagery, the horizontal reference systems to be used are NAD83 Canadian Spatial Reference System (CSRS) - North American Datum 1983 (NAD83) and Geodetic Reference System 1980 (GRS80), with the reference ellipsoid.

2.2.1.10 Imagery resolution

For the Open Imagery of Canada, the Contractor must be able to offer imagery with a resolution better than 10m.

2.2.1.11 Image Positional Accuracy and Georeferencing

Same as *Image Positional Accuracy and Georeferencing* at 2.1.1.12

2.2.1.12 Product Type

For the Open Imagery of Canada, the Contractor must supply the following 3 products:

- Tiled Mosaic of Canada: All the datasets needed to create the mosaic ;
- Standard Imagery: All the orthoimages that were used to create the Tiled Mosaic of Canada without any colour balancing;
- FSI: All the FSI of the orthoimages that were used to create the Tiled Mosaic of Canada in their native format and without any colour balancing.

2.2.1.13 File Format

For the Tiled Mosaic of Canada, the Contractor must offer the imagery in a Red-Green-Blue (RGB) representation of the visible spectrum bands in GeoTIFF file format. For the Standard Imagery same as File Format at 2.1.2.3.9. For the FSI same as File Format at 2.1.2.3.9

2.2.1.14 Tiled Mosaic of Canada

While individual images have great value to some users, many others are interested in 'regions of interest' made up of several individual images. Assembling individual scenes into a seamless, colour balanced mosaic is a difficult and time consuming task however, and often beyond the ability of the software and the expertise of most users.

The Tiled Mosaic of Canada must cover all of Canada defined as the landmass and the islands of Canada buffered by 2 km. The mosaic must be a seamless visualization product of the Canadian landmass and tiled according to the National Topographic System.

Canada recognizes the challenge for the Contractor to create a mosaic of all Canada because of the size of the country, the short acquisition period in the northern part, the satellite sensor orbit mechanic and sometimes the bad weather condition. The following sections describe the requirement for the tiled mosaic of Canada.

2.2.1.14.1 Image Selection

When creating the mosaic of Canada, the Contractor will have to choose among thousands of images to decide which one to use. The priority sequence the Contractor should respect when sorting and choosing which image to use is as follows:

- Priority 1: Using the most recent images;
- Priority 2: Using cloud-free images in order to achieve a mosaic of Canada with less than 5% of clouds;
- Priority 3: Images which respect the ideal imagery acquisition periods;
- Priority 4: Using near-nadir images.

These are general rules for image selection. The Contractor can modify them if it is believed the resulting mosaic will be better.

2.2.1.14.2 Mosaic of Canada Tiling system

The Contractor must tile the mosaic of Canada into separate datasets according to the National Topographic System (NTS) at scale 1 : 50 000 (NTS 50K) or 1 : 250 000 (NTS 250K) depending on the resolution of the imagery.

No tiling according to the NTS is needed for the Standard Imagery and the FSI.

2.2.1.14.3 Tiled Mosaic of Canada True-Colour Composite

For the Tiled Mosaic of Canada, the Contractor must create a true-colour composite image or simulate one through pansharpener should the sensor or sensor combination not be a true RGB. The radiometric calibration of spectral bands must be done in order to create a true-colour composite and must be realized so as to obtain a faithful representation of the land cover.

2.2.1.14.4 Colour Balancing

The Contractor must perform a colour balancing so radiometric values will depict individual ecological zones, ensuring a proper transition between them. The hydrographic polygons must be used in order to ensure the uniformity of the radiometric values of water features. The land cover must be used to regularize the differences in chlorophyll activity for images captured between the spring and the fall.

The Contractor must ensure imagery continuity between adjacent NTS Datasets and ecological zones.

The hydrographical and land cover polygons are available at <http://geogratis.cgdi.gc.ca>

2.2.1.14.5 Cloud-Free Tiled Mosaic of Canada

For the Tiled Mosaic of Canada images must be selected to ensure minimum cloud coverage. For Standard Imagery, the cloud coverage must be less than 20% (Section 2.1.1.8), the total cloud coverage for the Tiled Mosaic of Canada must be less than 5%. Cloud coverage over multiple superimposed images should be analysed and processed to produce the best possible cloud-free mosaic.

2.2.1.14.6 NoData Pixel

For areas where there are no valid/real radiometric values (no orthoimages), pixels must have the “NoData” Value, NoData value is “0” for each RGB channel.

2.2.2 File Transfer Protocol (FTP)

The Contractor must provide an externally provided/hosted interoperable anonymous FTP server to distribute the file based products of the Open Imagery of Canada. The following section describes the needs for the FTP requirements.

2.2.2.1 Imagery Content

The 3 following products must be searchable, accessible and downloadable from the FTP server:

- The Tiled Mosaic of Canada
- Standard Imagery

- Full Satellite Imagery

2.2.2.2 FTP standard

The FTP server must be compliant with the RFC 959 which is the current FTP protocol and RFC 3959 to offer resumable FTP.

2.2.2.3 Download capacity

Same as *Web Site Availability* requirements at 2.1.2.4.1

2.2.3 Web Mapping Server (WMS)

The Contractor must provide an externally provided/hosted interoperable Web Mapping Service for access to the Tiled Mosaic of Canada. The WMS can be the adaptation of an already existing system or be a development of a new one. This service will be used in the implementation of the Federal Geospatial Platform and may also be used by other systems. The WMS can be a commercial or an open source solution or a combination of both. The following section describes the needs for the WMS requirements.

2.2.3.1 Imagery Content

The WMS will only serve the Tiled Mosaic of Canada as describe in section 2.2.1.14.

2.2.3.2 Open Geospatial Consortium (OGC) Standards

In order to increase the interoperability of this service, the web mapping service must be compliant with the OGC Web Map Server Implementation Specification [OGC 06-042].

2.2.3.3 Web Site Availability

Same as *Web Site Availability* requirements at 2.1.2.4.1

2.2.3.4 Download Capacity

Based on the statistics of the actual WMS in service at NRCan it is estimated that such a service must be able to support traffic of 15 requests (getMap) per second.

2.2.3.5 Technical Help Desk

Same as *Technical Help Desk* requirement at 2.1.2.4.5

2.2.3.6 Coordinate System and Horizontal Reference System

The WMS must support at least the following projections and reference systems: CSRS Latitude Longitude (EPSG:4617), WGS84 Latitude Longitude (EPSG:4326), Spherical Mercator (EPSG:3857), WGS84 Latitude Longitude (EPSG:4326), NAD83 BC Albers (EPSG:3005).

2.3 Metadata

The Contractor must be able to provide the following metadata attributes (R Required) and (D Desirable) for the National Coverage Imagery (Section 2.1) and the Open Imagery of Canada (Section 2.2) as detailed below.

Properties	Required (R) or Desirable (D)
Satellite or constellation and Sensor name(s)	R
Acquisition Time (UTC) (Start/Stop)	R
Image Corner Coordinates including upper left, lower left, upper right, lower right.	R
Spatial resolution / Pixel spacing	R
Spectral band(s) / Beam mode(s) and polarization ordered	R
Sensor viewing / incidence angle	R
Number of pixels/samples and number of lines	R
Data processing level	R
Additional data processing information, including: processing date, processor name and version and other processing relevant information	D
Projection information, including: map projection, zone, ellipsoid, datum, resampling kernel used	R
Data Format provided	R
Browse Image (Thumbnail): A reduced resolution Product normally associated with catalogue browse functions and supplied with the Product Delivery Package.	R
Text of the License in its entirety	R
License Class	R
Ordering information, including: <ul style="list-style-type: none"> • Supplier order number, • Client order number, • Product id. 	D
For any Product involving orthorectification: specify the Digital Elevation Model used for terrain correction (As some Vendors do not have this attribute programmed in their ORTHO-product processing systems, this property is made “Desirable” to encourage its provision in the Delivery Package.	D

Table 1: Required and Desirable Metadata Attributes

The NAP (North American Profile) is comprised of eleven major metadata classes each of which is comprised of additional metadata classes and attributes. A short description of each major class is provided in the table below.

Major Class name	Description
Metadata	A description of the overall metadata record.
Identification	Basic information about the dataset.
Metadata Constraints	Describes the use, legal, and security constraints on the use of the metadata.
Data Quality	Data quality information for the resource.
Metadata Maintenance	Information about metadata update.
Spatial Representation	Digital representation of vector and/or grid objects in the dataset.
Reference System	Description of the spatial and/or temporal reference systems used in the dataset.
Content	Characteristics describing the feature catalogue, the coverage, and the image data.
Portrayal Catalogue	Information about the catalogue describing symbols and rules to depict a resource.
Distribution	Information about acquiring the dataset.
Application Schema	Information about the conceptual schema of the dataset.

Table 2: Major Metadata Classes of the North American Profile (NAP)

Contractors must provide NAP ISO19115 metadata attributes. Data owners can add additional metadata elements from other classes to more accurately describe their products as they are downloaded. Refer to Appendix C for a summary table of mandatory and optional metadata attributes to be included.

Reference:

http://www.fgdc.gov/standards/projects/incits-l1-standards-projects/NAP-Metadata/napMetadataProfileV11_7-26-07.pdf/view

2.4 Licencing

For the **National Coverage Imagery**, the Contractor must licence any images downloaded via the WPI (Section 2.1.2) and the WCS (Section 2.1.3) according to the End-User Licence Agreement, base licence class "I" as described in Appendix B.

For the National Coverage Imagery, the base licence is always “I” with the addition of all jurisdictions who have paid the licence cost added following a hyphen. For instance, if British Columbia, Ontario, and Quebec have paid the associated cost, the imagery will be provided with a licence of ‘I-ae’.

A sub class licence “a-m” cannot be bought if the base licence “I” has not been bought first.

For the **Open Imagery of Canada**, the Contractor must licence imagery (Section 2.2.1), downloaded via the FTP service (Section 2.2.2) and the WMS (Section 2.2.3) with licence class “II” (described below).

The base licence class and sub classes are:

- II- Open licence, a licence compatible with the Open Government Licence – Canada (<http://open.canada.ca/en/open-government-licence-canada>)

2.5 Reference Material

The Contractor must supply digital documentation for reference material for the WPI, WCS, WMS, FTP and Geographical region prioritization. The material must be in both official languages of Canada and must cover the following elements:

- How to use the WPI
 - Accessing the WPI
 - Searching the Catalogue of Imagery on the WPI
 - Downloading Imagery from the WPI
- How to use and access the WCS, WMS and FTP
- How to use and access the Geographic Regional Prioritization System
 - How to request status of imagery acquisitions

APPENDIX B to SOW: End-User Licence Agreement

FOR COMMERCIAL SATELLITE IMAGERY LICENSED TO THE GOVERNMENT OF CANADA

B1.0. INTRODUCTION AND CONTEXT

This End User License Agreement concerns the terms and conditions associated with the use of Commercial Satellite Imagery (the Product) between the Parties of the Agreement. Definitions used in this Agreement are provided in Article B2.0. The rights of the Licensee for use of Products provided by the Licensor, as well as Derived Products and Information Products are set out in this Agreement, which forms the whole of the license between the Parties. A set of License Classes is set out in Article B7.0 identifying the entities with which the Licensee may share Products within the terms of the license.

B2.0. DEFINITIONS:

Definitions provided below are in alphabetical order; however, it is particularly important to understand the hierarchical nature of the progression from the Product, Derived Products, Other Derived Products and Information Products. It is suggested therefore that the reader first review these definitions in that specific order.

‘Canada’, ‘Crown’, ‘Her Majesty’, ‘Government of Canada’, or ‘The Government’: means ‘Her Majesty the Queen in right of Canada’.

Derived Product: means products that are created from the Product by modification including the addition of other data or through manipulation techniques by the Licensee or its consultants or contractors, or both contractors and subcontractors. A Derived Product is created from at least one of the Original Pixels that is further processed by Canada or a consultant or a contractor or both a contractor and subcontractor on behalf of Canada and is Traceable and transformable back to the Product.

Duration of the License: means the boundaries in time for which the terms and conditions of the license will be valid.

Identified User: means any government department, agency or Crown Corporation listed in Schedules I, II, III, of the *Financial Administration Act*, R.S.C. 1985, c. F-11, <http://laws-lois.justice.gc.ca/eng/acts/f-11/>.

Imagery: A multi-dimensional (minimum two dimensions) array of data or ‘pixels’ when displayed represents a scene.

Information Product: means any Derived Product, which does not contain any imagery from the Product. An example might be a topographic map or Digital Elevation Model for which an image was used for creating boundaries but no imagery from the original Product or Derived

Product are included in the product. It also may include vector or polygonal classifications derived from the Product but contains no other representation of its pixels.

Licensee: means any Identified User.

License Class: means the class of entities as set out in Table A of Article B7.0 with which the Licensee may share the Product obtained pursuant to the License.

Licensor: means the Contractor having the capacity to license to Canada usage privileges as described under this License Agreement.

Metadata: means any data other than the imagery itself which describes or qualifies the imagery information from a Product including, but not limited to, geo-coding information, acquisition time, associated ground truth, sensor configuration, sensor geometry, satellite ephemeris, and other ancillary information which further describes a Product or the sensor configuration or platform on which it is carried. The metadata delivered with the imagery must include a copy of this License Agreement either embedded or as an attached file.

Original Pixels: means radiometric values (amplitude and phase where applicable) traceable and transformable back to the Product at the full spatial and spectral resolution, sampling and projection.

Other Derived Product: means any product processed by Canada or its consultants or its contractors or both contractors and subcontractors and derived from the Original Pixels but not transformable back to the data contained in the Product and so contains none of the Original Pixels.

Parties of the Agreement: means the Licensee and the Licensor (the Contractor).

Product: means an image scene (or imagery) or additional data or both supplied with the scene by the Contractor such as metadata which constitutes the information set distributed to the Identified User by the Contractor. The Product may include data either already created from data acquired by the Satellite-Sensor(s) or Constellation-Sensor(s) named in the contract.

Secure Format: means an encoding and reading format which only allows display and printing of the product imagery, but does not allow the product pixel values to be recovered.

Traceable, Traceability: means the steps in the heritage of creating the Product including whatever processing, transformations, radiometric corrections, geo-corrections, reformatting, resampling or other operations which have been applied in its creation. Certain parameters associated with traceability are normally provided in metadata; other information may be in the form of global documentation. Some aspects are important from a legal perspective and others from a practical point of view such as the ability to reverse or un-do an operation if subsequent calibration data or coefficients become available that are more accurate.

B3.0. GENERAL

The license rights granted in this license are for Products provided to the Licensee or obtained by the Licensee from the imagery services provided under the Contract << ***the contract # resulting from this RFP*** >>.

B4.0. OWNERSHIP

The Product is licensed for use and not sold to Canada. All rights, titles and interest in and to all intellectual property in or related to the Product are and will remain the exclusive property of the Licensor.

B5.0. DURATION OF LICENSE

The duration of the License is perpetuity.

B6.0. GRANT OF LICENSE**B6.1 Product**

The Licensor grants the Licensee for the Duration of the License a limited, non-transferable royalty free, irrevocable worldwide, non-exclusive license to use the Product and Derived Product and any accompanying written materials provided to the Licensee by the Licensor and any Derived Product, solely for the following uses:

- a. To make an unlimited number of soft and hard copies of the Product for the internal use of Licensee;
- b. To distribute to Licensee's employees, agents, consultants or contractors or both contractors and subcontractors, who are under a duty of confidentiality no less restrictive than Licensee's duty hereunder, the Product or copies of the Product by either a physical delivery medium or using a computer data network with access control mechanisms protecting the Product from unauthorized access;
- c. To store, post or process the Product in a system including access control mechanisms protecting the Product from unauthorized access;
- d. To share with the entities named in the License Class the Product or copies of the Product without restriction except for the requirement to provide copyright notice with the Product or copies of the Product;
- e. To release for publication, with copyright notice, print or display representation or both of imagery from the Product, to publish or have published these in research reports, journals, trade papers, posters, or similar publications for purposes consistent with the mandates of the Licensee;

- f. To reformat the Product for the Licensee's use into different formats or media from those in which the Product is delivered;
- g. To create or have consultants, contractors or both contractors and subcontractors create Derived Products, Other Derived Products or Information Products from the Product;
- h. To make the Product available to its consultants or contractors or both contractors and subcontractors for purposes otherwise consistent with the uses detailed in this License Agreement and subject to the restrictions herein, and without the right of the consultants or contractors or both contractors and subcontractors to transfer or sublicense;
- i. To analyze the system properties or adapt the Product for research purposes only. Any information, so determined, will be held confidential by the Licensee and would only be shared outside the Government of Canada according to the entities identified in this License Agreement or after obtaining further written permission of the Licensor for entities not identified in this License Agreement;
- j. To share as needed when deemed by the Licensee to be a concern of Canadian National security; and,
- k. To comply with national regulations of the country of the satellite owner with respect to further distribution of the Product to prohibited entities or countries when provided in writing from the Licensor.

B6.2 Derived Product

The Licensor grants the Licensee for the Duration of the License a limited, non-transferable royalty free, irrevocable worldwide, non-exclusive license to use any Derived Products solely for the following uses:

- a. To make an unlimited number of soft and hard copies of the Derived Product for the internal use of the Licensee;
- b. To distribute to Licensee's employees, agents, consultants or contractors or both contractors and subcontractors, who are under a duty of confidentiality no less restrictive than Licensee's duty hereunder, the Derived Product or copies of the Derived Product by either a physical delivery medium or using a computer data network with access control mechanisms protecting the Product from unauthorized access;
- c. To store, post or process the Derived Product in a system including access control mechanisms protecting the Product from unauthorized access;
- d. To use and distribute among the entities named in the License Class in this License Agreement the Derived Product or copies of the Derived Product without restriction except

for the requirement to provide copyright notice with the Derived Product or copies of the Derived Product;

- e. To release for publication, with copyright notice, print or display representations or both of imagery from the Derived Product, to publish or have published these in research reports, journals, trade papers, posters, or similar publications for purposes consistent with the mandates of the Licensee;
- f. To distribute the Derived Product in accordance with the same copyright and license restrictions of the Product as stated in Article B7.0;
- g. To make Derived Products available to its consultants or contractors or both contractors and subcontractors, for purposes otherwise consistent with the uses detailed in this License Agreement and subject to the restrictions herein, and without the right of the consultants or contractors or both contractors and subcontractors, to transfer or sublicense; and,
- h. To comply with national regulations of the country of the satellite owner when provided in writing from the Licensor with respect to further distribution of the Derived Product to prohibited entities or countries.

B6.3 Other Derived Product

The Licensor grants the Licensee for the Duration of the License a limited, non-transferable royalty free, irrevocable worldwide, non-exclusive license to create and use the Other Derived Products and any accompanying written materials provided to Licensee by the Licensor for their creation and for the following uses:

- a. All uses listed for Derived Products under Article B7.0, and
- b. Unlimited dissemination of irreversibly compressed files, such as .jpg, posted on Internet websites provided that the quality of the data available for download is a colour composite without associated geospatial information and spatial resolutions are 10 m or coarser. Such images must contain copyright notice and will have no other limitations on use or distribution.

B6.4 Information Product

The Licensor grants the Licensee for the Duration of the License a limited, non-transferable royalty free, irrevocable worldwide, non-exclusive license to use Information Products with no restrictions including dissemination without copyright notice. The Licensee may however acknowledge use of the Product in the creation or within the annotation of the Information Product. The Intellectual Property associated with such Information Products rests with the Licensee.

B7.0 LICENSE CLASSES

All data licensed is licensed for use for the public good and not for revenues.

The license for this data includes all identities included in Class I as well as those additional entities (a-m) listed. As an example, the license 'Class I-ae' would indicate a license that includes license 'Class I', license 'a', license 'e', and license 'f'.

License	Included Entities
Class I	Canadian Government Departments, Agencies, and Crown Corporations, Canadian academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada.
a	British Columbia Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within British Columbia, as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within British Columbia.
b	Alberta Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within Alberta, as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Alberta.
c	Saskatchewan Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within Saskatchewan as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Saskatchewan.
d	Manitoba Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within Manitoba, as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal

	Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Manitoba.
e	Ontario Government Departments, Agencies, Crown Corporations, Conservation Authorities and Municipal Governments located within Ontario, as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Ontario.
f	Quebec Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within Quebec as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Quebec.
g	New Brunswick Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within New Brunswick, as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within New Brunswick.
h	Nova Scotia Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within Nova Scotia as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Nova Scotia.
i	Newfoundland Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within Newfoundland as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Newfoundland.

j	Prince Edward Island Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within Prince Edward Island as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Prince Edward Island.
k	Nunavut Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within Nunavut as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Nunavut.
l	Northwest Territories Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within Northwest Territories as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Northwest Territories.
m	Yukon Government Departments, Agencies, and Crown Corporations, and Municipal Governments located within Yukon as well as academic research community affiliated with a recognized University or College, Aboriginal People and Aboriginal Governments (First Nations, Inuit, Metis, or Tribal Councils) in Canada located within Yukon.

B8.0 LIMITATIONS ON LICENSE

Licensee agrees and understands that it **may NOT**:

- a. sell, lease, rent, sub-license to non-Licensees, or share with users who are not entitled to share, the Product, or in any other manner whatsoever;
- b. post the Product to Public Internet web sites in a non-secure format that allows manipulation of the Product; and
- c. alter or remove any copyright notice or proprietary legend contained in or on the Product.

B9.0 APPLICABLE LAW

This License Agreement will be governed by and construed in accordance with the laws of *<select the province of the Contractor>* [which is the same Canadian jurisdiction as stated in the contract upon which this license is based] even though the Products may be used in other jurisdictions.

B10.0 EXPORT CONTROLS

It is understood that Licensee will not knowingly share any Products or Derived Products with any Restricted Groups that are defined in the export restrictions of a jurisdiction applicable to commercial satellite imagery, for the duration of the License when these restrictions are in effect, subject to the laws of Canada. For the USA, these Restricted Groups include: (i) any person or entity who is headquartered in, organized under the laws of or a citizen of any country on the United States State Department List of State Sponsors of Terrorism; (ii) any person or entity who is subject to sanctions administered by the United States Office of Foreign Assets Control ("OFAC"), including, without limitation, persons who are designated by OFAC from time to time as "Specially Designated Nationals or Blocked Persons;" (iii) any person or entity who is prohibited from receiving Products or Derived Products pursuant to any license granted to Licensor to operate the Satellite-Sensor or Constellation-Sensor; or (iv) any person who under U.S. laws, regulations or orders is otherwise prohibited from receiving such products.

B11.0 WARRANTY

B11.1 Product

- a.** The Licensor warrants that the Product will for thirty (30) days from the date of shipment substantially conform to the Licensor's specifications when used on appropriate computer hardware. The Products are complex and may contain some non-conformities, defects or errors; however, the Licensor does warrant that the Product adheres to the published format and quality specification and its content is consistent with the requirements as stated. The Licensor does not warrant that the Products will meet Licensee's needs or expectations, that the operations of the Products will be error free or uninterrupted, or that all non-conformities can or will be corrected. There are no express or implied warranties of fitness or merchantability given in connection with the sale or use of the Products. The Licensor disclaims all other warranties not expressly given in this section.
- b.** The Identified User must notify the Licensor within the 30-day warranty period of any warranty claim. The Licensor's sole obligation and Identified User's sole remedy under this Limited Warranty is that the Licensor either, in its discretion, will (a) use reasonable efforts to repair or replace the Product or to provide an avoidance procedure within a commercially reasonable time so that the Product substantially conforms to the

specifications contained in the Licensor's Product Specification, or (b) refund the amount of the price previously paid by the Identified User for the non-conforming Product.

B11.2 Storage Media

- a. The Licensor warrants that the delivery storage media, other than FTP, on which the Product is supplied to the Licensee will be free from material defect in materials and workmanship under normal use for a period of thirty (30) calendar days from the date of the Licensee's receipt of the Product. The foregoing warranty is exclusive and in lieu of all other warranties, express, implied or statutory. The Licensor specifically disclaims all other warranties including but not limited to any warranty of merchantability, fitness for a particular purpose, title or against infringement. The Licensee is solely responsible for selection of the Product to achieve the Licensee's intended results or for the Licensee's particular applications, and no warranties, guarantees or representations are made regarding the use or the results of the use of the Product in terms of its correctness, accuracy, reliability, currency or otherwise.

B12.0 PUBLIC GOOD

After a period greater than three (3) years from the Product's delivery or five (5) years after acquisition date whichever is later, the Product, or the Derived Product, with resolution reduced to 10 meter or coarser (if original resolution is higher) or unchanged (if original resolution is coarser than 10m), becomes Public Good and may be distributed by Canada without any fees or royalties payable to the Licensor provided that Canada includes, and requires the inclusion of, a copyright in the form of Image © 20XX, LICENSOR, on each image made available.

Appendix C to SOW

This document was created to facilitate the understanding of the Harmonized (H) NAP standard. It provides detailed information on HNAP Metadata mandatory items, business rules and best practices.

Each mandatory field of the HNAP profile is presented in this document.

The HNAP Metadata items are presented in two different forms in both official languages.

Link to HNAP profile: http://www.gcpedia.gc.ca/wiki/Federal_Geospatial_Platform/Policies_and_Standards/Catalogue/Release/Appendix_B_Guidelines_and_Best_Practices/Guide_to_Harmonized_ISO_19115:2003_NAP

[XmlGuide En](#)

The order in which the metadata items are presented respects the order of a valid HNAP xml file.

In the Value column, cells in RED represent the bare minimal information that need to be collected for the FGP Data Catalogue while cells typed in bold characters are the values expected for a HNAP document.

To add any supplementary information, refer to the NAP official document to know how and where to add the information.

Link to NAP Standard: <http://nap.geogratis.gc.ca/home.html>

Metadata class		Clause	Metadata item	HNAP					
				Structure	Business rules	Value	Line ID		
5.2.1			fileIdentifier	Mandatory	Universal unique identifier (UUID) generated according to ISO/IEC 9834-8:2005 using version 4 (random) or version 5 (SHA-1 hash) variants. Version 4 example: 40ffba40-e192-4cbd-9fdc-89bd664e136b Version 5 example: 74738ff5-5367-5958-9aee-98ffdc1876 <i>Automatically generated by FGP Data Catalogue</i>	(ex: 40ffba40-e192-4cbd-9fdc-89bd664e136b)	1		
5.2.2			language	Mandatory	Language code and country of the initial metadata language. eng; CAN or fra; CAN <i>Automatically generated by FGP Data Catalogue</i>	eng; CAN	2		
5.2.3			characterSet	Mandatory	Encoding of the metadata record. <i>Automatically generated by FGP Data Catalogue</i>	utf8; utf8	3		
5.2.5			hierarchyLevel	Mandatory	Level to which the metadata applies. Values typically are " dataset; jeuDonnées " or " series; série ". English codelist napMD_ScopeCode French codelist pnaMD_CodePortée	(ex: dataset; jeuDonnées)	4		
5.2.6 Contact (CI_ResponsibilityParty 5.16)	5.16.2	organizationName - English		Mandatory	Organization responsible for the metadata. Department or agency titles will conform to the Applied Titles (English) and Titres d'usage (French) as defined at : http://www.tbs-sct.gc.ca/fip-pcim/reg-eng.asp	(ex: Government of Canada; Natural Resources Canada; Earth Sciences Sector; Canada Centre for Mapping and Earth Observation)	5		
		organizationName - French		Mandatory	The format must conform to: Government of Canada; Applied Title (English) and Gouvernement du Canada; Titre d'usage (French). Sub and sub-sub organization (sectors, branches, etc.) may optionally be added, separated by semicolons.	(ex: Gouvernement du Canada; Ressources naturelles Canada; Secteur des sciences de la Terre; Centre canadien de cartographie et d'observation de la Terre)	6		
	5.19.6 (Repeatable)	5.16.4 contactInfo (CI_Contact 5.17)		5.17.2 address (CI_Address 5.19)	electronicMailAddress - English	Mandatory	Email of the organisation.	(ex: geoginfo@NRCan.gc.ca)	7
		electronicMailAddress - French			Mandatory	(ex: geoginfo@RNCAN.gc.ca)		8	
	5.16.5		role		Mandatory	Responsible party function. Suggestion: pointOfContact; contact English codelist napCI_RoleCode French codelist pnaCI_CodeRôle	(ex: pointOfContact; contact)	9	
5.2.7			dateStamp	Mandatory	Date that the metadata was created or last modified (date or dateTime type). <i>Automatically generated by FGP Data Catalogue</i>	(ex: 2015-02-18)	10		
5.2.8		metadataStandardName- English		Mandatory	Name of the metadata standard/profile used. <i>Automatically generated by FGP Data Catalogue</i>	North American Profile of ISO 19115:2003 - Geographic information - Metadata	11		
		metadataStandardName- French		Mandatory			Profil nord-américain de la norme ISO 19115:2003 - Information géographique - Métadonnées	12	
5.2.11 locale (PT_Locale 6.2)		language		Mandatory	The second metadata language. Anglais; English or French; Français <i>Automatically generated by FGP Data Catalogue</i>	French; Français	13		
		country		Mandatory	The country of the second language. Canada; Canada <i>Automatically generated by FGP Data Catalogue</i>	Canada; Canada	14		
		characterEncoding		Mandatory	The encoding of the second language. utf8; utf8 <i>Automatically generated by FGP Data Catalogue</i>	utf8; utf8	15		
5.2.17 Reference System Information (MD_ReferenceSystem 5.8)	5.8.1 referenceSystemIdentifier (RS_Identifier 5.8.2)	5.8.2.2		code	Mandatory	EPSG code or SR-ORG code. As a last resort, enter the proj4 parameters into the code element and leave codespace and version empty. The format must conform to : EPSG:1111 or SR-ORG:1111	(ex: EPSG:4617)	16	
		5.8.2.3		codespace	Conditional	http://www.epsg-registry.org or http://www.spatialreference.org In cases where an identifier/namespace does not apply (e.g. Proj4), codespace is not mandatory.	(ex: http://www.epsg-registry.org)	17	
		5.8.2.4		version	Conditional	In cases where a version does not apply (e.g. Proj4), version is not mandatory.	(ex: 8.6.2)	18	

Metadata class		Clause	Metadata item	HNAP						
				Structure	Business rules	Value	Line ID			
5.2.12			Identification Information (<i>MD_DataIdentification</i> 5.3.1)							
5.3.1.1 citation (<i>CI_Citation</i> 5.14)	5.14.1	title - English		Mandatory	Title of the data.	(ex: Agrilus planipennis (APL) - Emerald Ash Borer - Canada's Regulated Areas)	19			
		title - French		Mandatory		(ex: Agrilus planipennis (APL) - Agrile du frêne - Lieux réglementés au Canada)	20			
	5.14.3 date (<i>CI_Date</i> 5.15)	5.15.1		date	Mandatory	Date of creation for the data. Shall be provided for creation, publication and (where applicable) revision. Must be consistent with one of the following format: YYYY-MM-DD, YYYY-MM or YYYY	(ex: 2014-12-09)	21		
		5.15.2		dateType	Mandatory	Date type. Shall be provided for creation, publication and (where applicable) revision. <i>Automatically generated by FGP Data Catalogue</i> napCI_DateTypeCode	creation; création	22		
	5.14.3 date (<i>CI_Date</i> 5.15)	5.15.1		date	Mandatory	Date of the publication for the data. Shall be provided for creation, publication and (where applicable) revision. Must be consistent with one of the following format: YYYY-MM-DD, YYYY-MM or YYYY	(ex: 2014-12-09)	23		
		5.15.2		dateType	Mandatory	Date type. Shall be provided for creation, publication and (where applicable) revision. <i>Automatically generated by FGP Data Catalogue</i> napCI_DateTypeCode	publication; publication	24		
	5.14.7 citedResponsibleParty (<i>CI_ResponsibleParty</i> 5.16)	5.16.2		organizationName - English	Mandatory	Organisation responsible for the data. Department or agency titles will conform to the Applied Titles (English) and Titres d'usage (French) as defined at : http://www.tbs-sct.gc.ca/fip-pcim/req-eng.asp	(ex: Government of Canada; Canadian Food Inspection Agency; Plant Protection Division)	25		
				organizationName - French	Mandatory	The format must conform to: Government of Canada; Applied Title (English) and Gouvernement du Canada; Titre d'usage (French). Sub and sub-sub organization (sectors, branches, etc.) may optionally be added, separated by semicolons.	(ex: Gouvernement du Canada; Agence canadienne d'inspection des aliments; Division de la protection des végétaux)	26		
		5.16.4 contactInfo (<i>CI_Contact</i> 5.17)	5.17.2 address (<i>CI_Address</i> 5.19)	5.19.6 (Repeatable)		electronicMailAddress - English	Mandatory	Email of the organisation.	(ex: info@inspection.gc.ca)	27
				5.19.6 (Repeatable)		electronicMailAddress - French	Mandatory		(ex: info@inspection.gc.ca)	28
	5.16.5		role	Mandatory	Responsible party function. Suggestion: pointOfContact; contact English codelist napCI_RoleCode French codelist pnaCI_CodeRôle	(ex: pointOfContact; contact)	29			
	5.3.1.2			abstract - English	Mandatory	Brief narrative summary of the dataset's contents.	(ex: The data list the regulated areas for the emerald ash borer (Agrilus planipennis). The areas represent ...)	30		
				abstract - French	Mandatory		(ex: Les données énumèrent les zones réglementées pour l'agrile du frêne (Agrilus planipennis). Ces zones représentent ...)	31		
	5.3.1.5			status	Mandatory	Development phase of the dataset. English codelist napMD_ProgressCode French codelist pnaMD_CodeÉtatAvancement	(ex: completed; complété)	32		
	5.3.1.15 Resource Maintenance Information (<i>MD_MaintenanceInformation</i> 5.6)		5.6.1	maintenanceAndUpdateFrequency	Mandatory	Revision cycle of the data. English codelist napMD_MaintenanceFrequencyCode French codelist pnaMD_CodeFréquenceMiseÀjour	(ex: asNeeded; auBesoin)	33		
5.3.6.1			keyword - English (<i>Core Subject Thesaurus Keyword</i>)	Mandatory (Repeatable)	At a minimum, one keyword must be supplied from the Government of Canada Core Subject Thesaurus. Only preferred terms can be used. Choose the most specific terms available when describing the subject of a resource. As a general rule, a resource should not be indexed with both broader and narrower terms from a same hierarchical string. More than one preferred term can be used to fully express the subject of a resource.	(ex: Invasive species)	34			
			keyword - French (<i>Core Subject Thesaurus Keyword</i>)	Mandatory (Repeatable)		Note: The keyword will be automatically translated by FGP Data Catalogue. English Government Thesaurus French Thésaurus du gouvernement	(ex: Espèce envahissante)	35		

Metadata class		Clause	Metadata item	HNAP						
				Structure	Business rules	Value	Line ID			
Metadata Record Information (MD_Metadata 5.2)	5.3.1 Data Identification (MD_DataIdentification)	5.3.1.17 Descriptive Keywords (MD_Keywords 5.3.6)	5.3.6.2	type	Optional	Term or type used to group keywords. <i>Automatically generated by FGP Data Catalogue</i>	theme; thème	36		
			5.14.1	title - English	Mandatory	Thesaurus title. <i>Automatically generated by FGP Data Catalogue</i>	Government of Canada Core Subject Thesaurus	37		
				title - French	Mandatory		Thésaurus des sujets de base du gouvernement du Canada	38		
			5.3.6.3 thesaurusName (CI_Citation 5.14)	5.14.3 date (CI_Date 5.15)	5.15.1	date	Mandatory	Thesaurus creation date. <i>Automatically generated by FGP Data Catalogue</i>	2004	39
					5.15.2	dateType	Mandatory	Date type. <i>Automatically generated by FGP Data Catalogue</i>	creation; création	40
				5.14.3 date (CI_Date 5.15)	5.15.1	date	Mandatory	Thesaurus revision date. <i>Automatically generated by FGP Data Catalogue</i>	2015-03-26	41
					5.15.2	dateType	Mandatory	Date type. <i>Automatically generated by FGP Data Catalogue</i>	revision; révision	42
				5.14.7 citedResponsibleParty (CI_ResponsibleParty 5.16)	5.16.2	organizationName - English	Mandatory	Name of the organization responsible for the thesaurus. <i>Automatically generated by FGP Data Catalogue</i>	Government of Canada; Library and Archives Canada	43
						organizationName - French	Mandatory		Gouvernement du Canada; Bibliothèque et Archives Canada	44
			5.16.5		role	Mandatory	Role of the organization responsible for the thesaurus. <i>Automatically generated by FGP Data Catalogue</i>	custodian; conservateur	45	
			5.3.1.18 Resource Constraints (MD_LegalConstraints 5.4.2)	5.4.2.1	useLimitation - English	Mandatory	For data assessed and approved for release under the Open Government Licence - Canada useLimitation shall be mandatory. <i>Automatically generated by FGP Data Catalogue</i>	Open Government Licence - Canada (http://open.canada.ca/en/open-government-licence-canada)	46	
					useLimitation - French	Mandatory		Licence du gouvernement ouvert - Canada (http://ouvert.canada.ca/fr/licence-du-gouvernement-ouvert-canada)	47	
				5.4.2.2	accessConstraints	Mandatory	For data assessed and approved for release under the Open Government Licence - Canada accessConstraints shall be mandatory. <i>Automatically generated by FGP Data Catalogue</i>	licence; licence	48	
				5.4.2.3	useConstraints	Mandatory	For data assessed and approved for release under the Open Government Licence - Canada useConstraints shall be mandatory. <i>Automatically generated by FGP Data Catalogue</i>	licence; licence	49	
	5.4.2.4	otherConstraints		Conditional	Shall be provided where accessConstraints or useConstraints is set to "otherRestrictions". Note: Must be left empty because accessConstraints and useConstraints are set to "licence".		N/A			
	extent (15.13)	13.3 Geographic Bounding Box (GeographicBoundingBox)	5.3.1.7	spatialRepresentationType	Mandatory	Spatial representation type of the data. English codelist napMD_SpatialRepresentationTypeCode French codelist pnaMD_CodeTypeReprésentation	(ex: vector; vecteur)	50		
			5.3.1.9	language	Mandatory (Repeatable)	Language of the data (usually eng; CAN or fra; CAN). Repeat for multiple languages.	(ex: eng; CAN)	51		
			5.3.1.10	characterSet	Optional	Character coding standard in the dataset.	(ex:utf8; utf8)	51-1		
			5.3.1.11 (Repeatable)	topicCategory	Mandatory when hierarchyLevel is set to "dataset"	Main theme (English only) of the data. napMD_TopicCategoryCode	(ex: geoscientificInformation)	52		
			5.13.3.2	westBoundLongitude	Mandatory	Geographic Bounding Box, Minimum Longitude for the data.	(ex:-141.003]	53		
			5.13.3.3	eastBoundLongitude	Mandatory	Geographic Bounding Box, Maximum Longitude for the data.	(ex:-52.6380)	54		
			5.13.3.4	southBoundLatitude	Mandatory	Geographic Bounding Box, Minimum Latitude for the data.	(ex:41.6766)	55		

Metadata class				Clause	Metadata item	HNAP					
						Structure	Business rules	Value	Line ID		
Information distribution	5.3.1.13 (EX_Ext)	5.13.5 Temporal Element (EX_Temporal Extent)	5.13.3.5		northBoundLatitude	Mandatory	Geographic Bounding Box, Maximum Latitude for the data.	(ex:83.3362)	56		
			5.13.5.1 extent (T/M_Period)	5.13.5.1		beginDate	Mandatory	Beginning or Start date of the time period that a particular dataset covers or describes. Must be consistent with one of the following format: YYYY-MM-DD, YYYY-MM or YYYY	(ex:2014-01-01)	57	
				5.13.5.1		endDate	Optional	Final date of the dataset. An unknown endDate is possible if the dataset is still "valid" for the current time period. Therefore endDate is optional. Must be consistent with one of the following format: YYYY-MM-DD, YYYY-MM or YYYY	(ex:2014-12-31)	58	
	5.2.20				Distribution Information (MD_Distribution 5.11)						
	5.11.3 Distribution Format (MD_Format) Repeatable	5.11.3.1		5.11.3.1		name (File Format Name)	Mandatory	Format of the data distributed. The value must be one of: AI, AMF, Application, ASCII Grid, BMP, CDED ASCII, CDR, CSV, DOC, dxf, E00, ECW, EDI, EMF, EPS, ESRI REST, EXE, FGDB / GDB, Flat raster binary, GeoPDF, GeoRSS, GeoTIF, GIF, GML, HDF, HTML, IATI, JPEG 2000, JPG, JSON, JSON Lines, KML / KMZ, NetCDF, ODP, ODS, ODT, PDF, PNG, PPT, RDF, RDFa, RSS, RTF, SAR / CCT, SAV, SEGY, SHP, SQL, SVG, TIFF, TXT, XLS, XLSM, XML, WFS, WMS, WMTS, Zip, Other.	(ex:WMS)	59	
		5.11.3.2		5.11.3.2		version (File Format Version)	Mandatory	Version number or date of the format chosen. If version is unknown use the value "unknown".	(ex:1.3.0)	60	
	5.11.2 Distributor (MD_Distributor)	5.11.2.1 distributorContact (CL_ResponsibilityParty 5.16)	5.16.2	5.16.2		organizationName - English	Mandatory	Organisation responsible for the distribution. Department or agency titles will conform to the Applied Titles (English) and Titres d'usage (French) as defined at : http://www.tbs-sct.gc.ca/fip-pcim/req-eng.asp	(ex: Government of Canada; Natural Resources Canada; Earth Sciences Sector; Canada Centre for Mapping and Earth Observation)	61	
				5.16.2		organizationName - French	Mandatory	The format must conform to: Government of Canada; Applied Title (English) and Gouvernement du Canada; Titre d'usage (French). Sub and sub-sub organization (sectors, branches, etc.) may optionally be added, separated by semicolons.	(ex: Gouvernement du Canada; Ressources naturelles Canada; Secteur des sciences de la Terre; Centre canadien de cartographie et d'observation de la Terre)	62	
			5.16.4 contactInfo (CL_Contact 5.17)	5.17.2 address (CL_Address 5.19)	5.19.6 (Repeatable)		electronicMailAddress - English	Mandatory	Email of the organisation.	(ex:geoginfo@NRCan.gc.ca)	63
					5.19.6 (Repeatable)		electronicMailAddress - French	Mandatory		(ex:geoginfo@RNCAN.gc.ca)	64
			5.16.5		5.16.5		role	Mandatory	Responsible party function. Suggestion: distributor; distributeur English codelist_napCI_RoleCode French codelist_pnaCI_CodeRôle	(ex:distributor; distributeur)	65
	WEB Map Service in English The attribute "role" added to the online item states the language of the service (<gmd:onLine xlink:role="urn:xml:lang:eng-CAN">).										
	5.11.1.3 onLine (CL_OnlineResource 5.20)	5.20.1		5.20.1		linkage (Service URL)	Mandatory	For a OGC:WMS service type, the format must conform to: a GetCapabilities request with non-standard parameters (mandatory : "LAYERS=<layername>", optional : "LEGEND_FORMAT=<legend_format>" and "FEATURE_INFO_TYPE=<featureInfoType>") : http://ows.geobase.ca/wms/geobase_en?service=WMS&request=GetCapabilities&version=1.3.0&layers=nhn:hydrography&legend_format=image/png&feature_info_type=text/html WARNING: The special character "&" used in the URL, must be replaced by the corresponding HTML code "&" when working in XML format. For a ESRI REST service type, the format must conform to: a ESRI mapserv request with the addition of the layer number: http://www.agr.gc.ca/atlas/rest/services/servicesdecarte/aac_bassin_hydrographique_2013/MapServer/10	(ex:http://maps.geogratis.gc.ca/wms/eab_en?service=WMS&request=getCapabilities&version=1.3.0&layers=emerald_ash_borer_reg_area&legend_format=image/png&feature_info_type=text/html)	66	
		5.20.2		5.20.2		protocol	Mandatory	The value must conform to : OGC:WMS or ESRI REST: Map Service	(ex:OGC:WMS)	67	
		5.20.4		5.20.4		name - English	Mandatory	Name of the web map service being described.	(ex:English Web Service; Emerald Ash Borer Regulated Areas)	68	
		5.20.4		5.20.4		name - French	Mandatory		(ex:Service Web en anglais; Lieux réglementés pour l'agrite du frêne)	69	
	5.20.5		5.20.5		description - English	Mandatory	The format must conform to: ContentType;Format;Lang,(Lang,Lang) where: ContentType: Web Service Format: WMS or ESRI REST	(ex:Web Service; WMS; eng)	70		

Metadata class		Clause	Metadata item	HNAP					
				Structure	Business rules	Value	Line ID		
5.11 Distribut (MD_Dist)	5.11.1 Transfer Options (MD_DigitalTransferOptions)	5.11.1.3 onLine (CI_OnlineResource 5.20)	description - French	Mandatory	Format : WMS or ESRI REST Lang : eng, fra, zxx (for no linguistic content e.g. imagery) or the appropriate code from ISO 639-2/T. List the data language used seperated by comma, if more than one.	(ex:Service Web; WMS; eng)	71		
			WEB Map Service in French The attribute "role" added to the online item states the language of the service (<gmd:onLine xlink:role="urn:xml:lang:fra-CAN">).						
			5.20.1	linkage (Service URL)	Mandatory	For a OGC:WMS service type, the format must conform to: a GetCapabilities request with the addition of non-standard parameters (mandatory : "LAYERS=<layername>", optional : "LEGEND_FORMAT=<legend_format>" and "FEATURE_INFO_TYPE=<featureInfoType>") : http://ows.geobase.ca/wms/geobase_fr?service=WMS&request=GetCapabilities&version=1.1.1&layers=nhn;hydrography&legend_format=image/png&feature_info_type=text/html WARNING: The special character "&" used in the URL, it must be replace by the corresponding HTML code "&" when working in XML format. For a ESRI REST service type, the format must conform to: a ESRI mapserver request with the addition of the layer number: http://www.agr.gc.ca/atlas/rest/services/servicesdecarte/aac_bassin_hydrographique_2013/MapServer/10	(ex:http://cartes.geogratis.gc.ca/wms/eab_fr?service=WMS&request=getCapabilities&version=1.3.0&layers=lieux_reg_agrile_du_frene&legend_format=image/png&feature_info_type=text/html)	72	
			5.20.2	protocol	Mandatory	The value must conform to : OGC:WMS or ESRI REST: Map Service	(ex:OGC:WMS)	73	
			5.20.4	name - English	Mandatory	Name of the web map service being described.	(ex:French Web Service; Emerald Ash Borer Regulated Areas)	74	
			5.20.4	name - French	Mandatory		(ex:Service Web en français; Lieux réglementés pour l'agrile du frêne)	75	
			5.20.5	description - English	Mandatory	The format must conform to: ContentType;Format;Lang(,Lang,Lang) where: ContentType: Web Service Format : WMS or ESRI REST Lang : eng, fra, zxx (for no linguistic content e.g. imagery) or the appropriate code from ISO 639-2/T. List the data language(s) , seperated by comma if more than one.	(ex:Web Service; WMS; fra)	76	
				description - French	Mandatory		(ex:Service Web; WMS; fra)	77	
			Other Data Resource - This section is optional but if created, all the mandatory fields must be provided						
			5.11.1.3 onLine (CI_OnlineResource 5.20) Repeatable	5.20.1	linkage (URL)	Mandatory	A valid URL that links to the resource.	(ex:ftp://ftp2.cits.mcan.gc.ca/pub/geobase/official/nrn_rrn/)	78
				5.20.2	protocol	Mandatory	Enter the protocol used for the resource. Suggestion : HTTP, FTP or HTTPS	(ex:FTP)	79
				5.20.4	name - English	Mandatory	Name of the resource being described.	(ex: Download link to files in GML format)	80
				5.20.4	name - French	Mandatory		(ex: Lien de téléchargement des fichiers en format GML)	81
				5.20.5	description - English	Mandatory	The format must conform to: ContentType;Format;Lang(,Lang,Lang) where: ContentType: Dataset, Web Service, API, Supporting Document, Application Format : AI, AMF, Application, ASCII Grid, BMP, CDED ASCII, CDR, CSV, DOC, dxf, E00, ECW, EDI, EMF, EPS, ESRI REST, EXE, FGDB / GDB, Flat raster binary, GeoPDF, GeoRSS, GeoTIF, GIF, GML, HDF, HTML, IATI, JPEG 2000, JPG, JSON, JSON Lines, KML / KMZ, NetCDF, ODP, ODS, ODT, PDF, PNG, PPT, RDF, RDFa, RSS, RTF, SAR / CCT, SAV, SEGY, SHP, SQL, SVG, TIFF, TXT, XLS, XLSTM, XML, WFS, WMS, WMTS, Zip, Other Lang : eng, fra, zxx (for no linguistic content e.g. imagery) or the appropriate code from ISO 639-2/T. List the resource language(s), seperated by comma if more than one.	(ex: Application ;Application;eng, fra)	82
				5.20.5	description - French	Mandatory		(ex: Application ;Application;eng, fra)	83