



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

**Regional Manager/Real Property
Contracting/PWGSC
Ontario Region, Tendering Office
12th Floor, 4900 Yonge Street
Toronto, Ontario
M2N 6A6
Ontario**

**REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION**

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

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

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

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

Comments - Commentaires

Vendor/Firm Name and Address

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

Issuing Office - Bureau de distribution

**Regional Manager/Real Property Contracting/PWGSC
Ontario Region, Tendering Office
12th Floor, 4900 Yonge Street
Toronto, Ontario
M2N 6A6
Ontario**

Title - Sujet CCIW Lab Modernization Plan		
Solicitation No. - N° de l'invitation EQ754-171534/A	Date 2016-10-05	
Client Reference No. - N° de référence du client R.077680.001		
GETS Reference No. - N° de référence de SEAG PW-\$PWL-041-2221		
File No. - N° de dossier PWL-6-39095 (041)	CCC No./N° CCC - FMS No./N° VME	
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2016-11-17		Time Zone Fuseau horaire Eastern Standard Time EST
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>		
Address Enquiries to: - Adresser toutes questions à: Chan, Ricky		Buyer Id - Id de l'acheteur pwl041
Telephone No. - N° de téléphone (416) 512-5276 ()	FAX No. - N° de FAX (416) 512-5862	
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Environment Canada CCIW Building 867 Lakeshore Rd Burlington, ON X1X 1X1		

Instructions: See Herein

Instructions: Voir aux présentes

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

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(PWGSC)

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SUPPLEMENTARY INSTRUCTIONS TO PROPONENTS (SI)

SI1 INTRODUCTION

1. Public Works and Government Services Canada (PWGSC) intends to retain an individual consulting firm or joint venture to provide the professional services for the project as set out in this Request for Proposal (RFP).
2. This is a single phase selection process. The nature of the requirement and the anticipated limited number of response by the industry leads PWGSC to believe that this approach will not unduly force a large number of firms to expend an overall unreasonable amount of effort in response to PWGSC.
3. Proponents responding to this RFP are requested to submit a full and complete proposal. The proposal will cover not only the qualifications, experience and organization of the proposed Consultant Team, but also the detailed approach to the work, and the pricing and terms offered. A combination of the technical and price of services submissions will constitute the proposal.

SI2 PROPOSAL DOCUMENTS

1. All instructions, general terms, conditions and clauses identified in the RFP by number, date and title, are hereby incorporated by reference into and form part of this solicitation and any resultant contract.

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

2. The following are the proposal documents:
 - (a) Supplementary Instructions to Proponents (SI);
R1410T (2016-04-04), General instructions (GI) – Architectural and/or Engineering services – Request for Proposal;
Submission Requirements and Evaluation (SRE);
 - (b) the general terms, conditions and clauses, as amended, identified in the Agreement clause;
 - (c) Project Brief;

- (d) the document entitled "Doing Business with Public Works and Government Services Canada (PWGSC);
 - (e) any amendment to the solicitation document issued prior to the date set for receipt of proposals; and
 - (f) the proposal, Declaration/Certifications Form and Price Proposal Form.
3. Submission of a proposal constitutes acknowledgment that the Proponent has read and agrees to be bound by these documents.

SI3 OPTIONAL SITE VISIT

Arrangements have been made for a tour of the work site. The site visit will be held on Tuesday, October 25, 2016 at 10:00 a.m. at:

Canada Centre for Inland Waters (CCIW)
867 Lakeshore Road
Burlington, Ontario L7S 1A1

Proponents are requested to communicate with the Contracting Authority no later than two (2) business days before the scheduled visit to confirm attendance and provide the name(s) of the person(s) who will attend. Proponents may be requested to sign an attendance sheet.

Proponents who do not attend or do not send a representative will not be given an alternative appointment, but they will not be precluded from submitting a proposal. Any clarifications or changes to the Request for Proposal resulting from the site visit will be included as an amendment to the Request for Proposal.

SI4 QUESTIONS OR REQUEST FOR CLARIFICATION

Questions or requests for clarification during the solicitation period must be submitted in writing to the Contracting Authority named on the RFP - Page 1 as early as possible. Enquiries should be received no later than [10] working days prior to the closing date identified on the front page of the Request for Proposal. Enquiries received after that date may not be answered prior to the closing date of the solicitation.

SI5 CANADA'S TRADE AGREEMENTS

This procurement is subject to the provisions of the North American Free Trade Agreement (NAFTA) and the World Trade Organization - Agreement on Government Procurement (WTO-AGP).

SI6 CERTIFICATIONS

1. Integrity Provisions – Declaration of Convicted Offences

In accordance with the Ineligibility and Suspension Policy (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Proponent must **provide with its bid, as applicable**, to be given further consideration in the procurement process, the required documentation as per R1410T (2016-04-04), General instructions 1 (GI1), Integrity Provisions – Proposal, **section 3b**.

2. Federal Contractors Program for Employment Equity - Proposal Certification

By submitting a proposal, the Proponent certifies that the Proponent, and any of the Proponent's members if the Proponent is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list

(http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from Employment and Social Development Canada (ESDC) - Labour's website.

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

Canada will also have the right to terminate the Agreement for default if a Consultant, or any member of the Consultant if the Consultant is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list during the period of the Agreement.

The Proponent must provide the Contracting Authority with a completed Federal Contractors Program for Employment Equity - Certification (see Appendix B - Declaration/Certifications Form), before contract award. If the Proponent is a Joint Venture, the Proponent must provide the Contracting Authority with a completed Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

SI7 Changes to Clause R1410T (2016-04-04) General Instructions (GI) – Architectural and/or Engineering Services – Request for Proposal

1. Section GI3 (2015-03-25) Overview of Selection Procedure, 3.2 Proposal Evaluation and Rating, Item 5. is deleted and replaced with the following:

GI3 3.2 Proposal Evaluation and Rating

5. The remaining prices proposals are rated as follows:

- a. The lowest Total Evaluated Percentage Fee for Required, Additional and Specialized Services receives a Price Rating/Maximum Score of 15;
- b. The Total Evaluated Percentage Fee for Required, Additional and Specialized Services for other price proposals will receive a Price Rating for Percentage Fee based on the following formula:

$$\frac{\text{Lowest Total Evaluated Percentage Fee for Required Services}}{\text{Proponent's Total Evaluated Percentage Fee for Required Services, Additional Services and Specialized Services}} \times 15 \text{ points} = \text{Price Rating for Percentage Fee for Required, Additional and Specialized Services}$$

- c. The lowest Total Evaluated Fixed Fee for Optional Services receives a Price Rating/Maximum Score of 5;
- d. The Total Evaluated Fixed Fee for Optional Services for other price proposals will receive a Price Rating for Fixed Fee based on the following formula:

$$\frac{\text{Lowest Total Evaluated Fixed Fee for Optional Services}}{\text{Proponent's Total Evaluated Fixed Fee for Optional Services}} \times 5 \text{ points} = \text{Price Rating for Fixed Fees for Optional Services}$$

SI8 WEBSITES

The connection to some of the Web sites in the RFP is established by the use of hyperlinks. The following is a list of the addresses of the Web sites:

Employment Equity Act

<http://laws-lois.justice.gc.ca/eng/acts/E-5.401/index.html>

Federal Contractors Program (FCP)

http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/index.shtml

Certificate of Commitment to Implement Employment Equity form LAB 1168

<http://www.servicecanada.gc.ca/cgi-bin/search/eforms/index.cgi?app=profile&form=lab1168&dept=sc&lang=e>

Ineligibility and Suspension Policy

<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>

Code of Conduct for Procurement

<http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html>

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Lobbying Act

<http://laws-lois.justice.gc.ca/eng/acts/L-12.4/?noCookie>

Buy and Sell

<https://buyandsell.gc.ca/>

Supplier Registration Information

<https://srisupplier.contractscanada.gc.ca>

Consultant Performance Evaluation Report Form

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/2913-1.pdf>

Canadian economic sanctions

<http://www.international.gc.ca/sanctions/index.aspx?lang=eng>

National Joint Council (NJC) Travel Directive

<http://www.njc-cnm.gc.ca/directive/travel-voyage/index-eng.php>

TERMS, CONDITIONS AND CLAUSES

AGREEMENT

1. The Consultant understands and agrees that upon acceptance of the offer by Canada, a binding Agreement shall be formed between Canada and the Consultant and the documents forming the Agreement shall be the following:

- (a) the Front Page and this Agreement clause;
- (b) the General Terms, Conditions and Clauses, as amended, identified as:
 - R1210D (2016-04-04), General Condition (GC) 1 - General Provisions – Architectural and/or Engineering Services
 - R1215D (2016-01-28), General Condition (GC) 2 - Administration of the Contract – Architectural and/or Engineering Services
 - R1220D (2015-02-25), General Condition (GC) 3 - Consultant Services
 - R1225D (2015-04-01), General Condition (GC) 4 - Intellectual Property
 - R1230D (2016-01-28), General Condition (GC) 5 - Terms of Payment – Architectural and/or Engineering Services
 - R1235D (2011-05-16), General Condition (GC) 6 - Changes
 - R1240D (2011-05-16), General Condition (GC) 7 - Taking the Services Out of the Consultant's Hands, Suspension or Termination
 - R1245D (2016-01-28), General Condition (GC) 8 - Dispute Resolution – Architectural and/or Engineering Services
 - R1250D (2015-07-03), General Condition (GC) 9 - Indemnification and Insurance

Section GC1.1 of R1210D, Definitions, incorporated by reference above, is amended as follows:

ADD:

“Architectural and Engineering Services”

means services to provide a range of investigation and recommendation reports, planning, design, preparation, or supervision of the construction, repair, renovation or restoration of a work and includes contract administration services, for real property projects.

“Construction Services”

means construction, repair, renovation or restoration of any work except a vessel and includes; the supply and erection of a prefabricated structure; dredging; demolition; environmental services related to a real property; or, the hire of equipment to be used in or incidentally to the execution of any construction services referred to above.

“Facility Maintenance Services”

means services related to activities normally associated with the maintenance of a facility and keeping spaces, structures and infrastructure in proper operating condition in a routine, scheduled, or anticipated fashion to prevent failure and degradation including inspection, testing, servicing, classification as to serviceability, repairs, rebuilding and reclamation, as well as cleaning, waste removal, snow removal, lawn care, replacement of flooring, lighting or plumbing fixtures, painting and other minor works.

Section GC1.12 of R1210D, Not applicable, incorporated by reference above, is deleted in its entirety and replaced with the following:

R1210D GC1.12 (2016-04-04) Performance evaluation - contract

1. Consultants shall take note that the performance of the Consultant during and upon completion of the services shall be evaluated by Canada. The evaluation includes all or some of the following criteria:
 - a. Design
 - b. Quality of Results
 - c. Management
 - d. Time
 - e. Cost
2. A weighting factor of 20 points will be assigned to each of the five criteria as follows:
 - a. Unacceptable: 0 to 5 points
 - b. Not satisfactory: 6 to 10 points
 - c. Satisfactory: 11 to 16 points
 - d. Superior: 17 to 20 points
3. The consequences resulting from the performance evaluation are as follows:
 - a. For an overall rating of 85% or higher, a congratulation letter is sent to the Consultant.
 - b. For an overall rating of between 51% and 84%, a standard, meets expectations, letter is sent to the Consultant.

- c. For an overall rating of between 30% and 50%, a warning letter is sent to the Consultant indicating that if, within the next two (2) years, they receive 50% or less on another evaluation, the firm may be suspended from any new PWGSC solicitations for construction services, architectural and engineering services or facility maintenance services, of real property projects, for a period of one year.
- d. For an overall rating of less than 30%, a suspension letter is sent to the Consultant indicating that the firm is suspended from any new PWGSC solicitations for construction services, architectural and engineering services or facility maintenance services, of real property projects, for a period of one year.
- e. For a rating of 5 points or less on any one criterion, a suspension letter is sent to the Consultant indicating that the firm is suspended from any new PWGSC solicitations for construction services, architectural and engineering services or facility maintenance services, of real property projects, for a period of one year.

The form PWGSC-TPSGC 2913-1, Select - Consultant Performance Evaluation Report (CPERF), is used to record the performance.

Supplementary Conditions
Agreement Particulars

- (c) Project Brief;
- (d) the document entitled "Doing Business with Public Works and Government Services Canada (PWGSC);
- (e) any amendment to the solicitation document incorporated in the Agreement before the date of the Agreement; and
- (f) the proposal, the Declaration/Certifications Form and the Price Proposal Form.

2. The documents identified above by title, number and date are hereby incorporated by reference into and form part of this Agreement, as though expressly set out herein, subject to any other express terms and conditions herein contained.

The documents identified above by title, number and date are set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site: <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>

3. If there is a discrepancy between the wording of any documents that appear on the following list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.
- (a) any amendment or variation in the Agreement that is made in accordance with the terms and conditions of the Agreement;
 - (b) any amendment to the solicitation document incorporated in the Agreement before the date of the Agreement;
 - (c) this Agreement clause;
 - (d) Supplementary Conditions;
 - (e) General Terms, Conditions and Clauses;
 - (f) Agreement Particulars;
 - (g) Project Brief;
 - (h) the document entitled "Doing Business with Public Works and Government Services Canada (PWGSC);
 - (i) the proposal.

SUPPLEMENTARY CONDITIONS (SC)

SC1 SECURITY REQUIREMENT

There is no security requirement applicable to this Agreement.

SC2 FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY - DEFAULT BY THE CONSULTANT

The Consultant understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Consultant and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the contract. If the AIEE becomes invalid, the name of the Consultant will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC will constitute the Consultant in default as per the terms of the contract.

SC3 CHANGES TO CLAUSE R1250D (2015-07-03) GENERAL CONDITION (GC) 9 - INDEMNIFICATION AND INSURANCE

1. R1250D GC9.2 (2015-07-03) Insurance Requirements, 3. Professional Liability, article b. is deleted and replaced with the following:

The following provision must be incorporated into the conditions of the Consultant's Professional Liability insurance coverage: "Notice of Cancellation of

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Insurance Coverage: The Consultant agrees to immediately advise the Contracting Authority in writing upon being informed or in receipt of any notification of a pending cancellation of its professional liability insurance and / or cancellation of its Certificate of Practice, or of any intention by the Consultant to reduce the claim limits it maintains.”

AGREEMENT PARTICULARS

The Agreement Particulars will be issued at time of award of contract and will identify the fee to be paid to the Consultant for the services determined in the Price Proposal Form.

PROJECT BRIEF

Description of Project

- PD 1 Project Information
- PD 2 Project Identification
- PD 3 Project Background
- PD 4 Existing Documentation
- PD 5 Project Objectives
- PD 6 Issues
- PD 7 Consultant Services

Description of Services

- PA 1 Project Administration

Required Services

- RS 1 Analysis of Project Scope of Work
- RS 2 Design Concept
- RS 3 Design Development
- RS 4 Construction Documents
- RS 5 Tender Call, Bid Evaluation & Construction Contract Award
- RS 6 Construction and Contract Administration
- RS 7 Commissioning
- RS 8 Post-Construction Warranty Review

Additional Services

- AS 1 Project Time Planning, Scheduling and Control
- AS 2 Estimating and Cost Planning
- AS 3 Risk Management
- AS 4 Resident Services During Construction
- AS 5 Closure Report
- AS 6 Laboratory Move Coordination Advisory Services
- AS 7 Interior Design

Specialized Services

- SS 1 Sustainable Design Specialist
- SS 2 IT / Telecommunications Specialist
- SS 3 Building Code Specialist
- SS 4 Commissioning Manager (CxM)

Optional Services

- OS 1 Functional Programming only (for entire facility)

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-
- OS 2 Functional Programming – Master Plan (for entire facility)
 - OS 3 Investigations and Reports
 - OS 4 Feasibility Report
 - OS 5 Design Concept - Master Plan
 - OS 6 Sustainability Strategies and Reports

PROJECT BRIEF

This Project Brief is divided into two sections:

- **Description of Project**
- **Description of Services**

Required Services
Additional Services
Specialized Services
Optional Services

For standards relating to the service provisions herein please refer to the document "Doing Business with Public Works and Government Services Canada (PWGSC)". The standards in "Doing Business with PWGSC" must be adhered to in conjunction with this scope of services.

DESCRIPTION OF PROJECT

PD 1 PROJECT INFORMATION

Public Works and Government Services Canada (PWGSC), on behalf of Environment Canada (EC) intends to retain a firm of Architects as Prime Consultant with support of mechanical, structural and electrical engineers and other specialized services for the provision of the services required for this project.

- 1.1 PWGSC Project Title:** CCIW Lab Modernization Plan Implementation and Optional Master Planning Services
- 1.2 Location of the Project:** Canada Centre for Inland Waters (CCIW)
867 Lakeshore Road Burlington, Ontario
- 1.3 PWGSC Project Number:** R.077680.001
- 1.4 Client / User:** Adam Kurz, P. Eng.
Project Leader (Client Department)
Environment Canada
335 River Road, Ottawa, Ontario, K1A 0H3
- 1.5 PWGSC Project Manager:** Kathryn Gould, M.Arch, OAA
Project Manager (Departmental Representative)
Project Management
Professional and Technical Services
Real Property Branch
Public Works and Government Services Canada
(PWGSC)
4900 Yonge St., Toronto, Ontario, M2N 6A6

PD 2 PROJECT IDENTIFICATION

2.1 Purpose of Document

On behalf of Environment Canada (EC), Public Works and Government Services Canada (PWGSC) has a requirement to engage a firm of Architects as Prime Consultant with the support of mechanical, electrical and structural engineers and other specialists to carry out a *Lab Modernization Plan Implementation and Optional Master Planning Services* project at the Canada Centre for Inland Waters (CCIW) and to ensure that the Consultant has a clear understanding of the project scope, procedures, and performance requirements.

2.2 Project Description

2.2.1 Project Scope

The *CCIW Lab Modernization Plan Implementation and Optional Master Planning Services* project will comprise of the implementation of a portion of the *Lab Modernization Plan* (LMP, Dialog, 2015), renovating lab W249 to become swing space for project, and sprinklering the CCIW complex, including the National Water Research Institute (NWRI), Wastewater Technology Centre (WTC) and Annex buildings, as outlined in the *Fire Safety Upgrades – Sprinkler System* study (WSP, July 2016).

The work for the Master Planning Services is optional and further identified in 2.2.2 - *Optional Services*.

The Consultant's services will be divided into three phases: Pre-Design Services, Design Services and Tender and Construction Services. During the Pre-Design services phase, the Project Team and Construction Manager will review all of the existing documentation for the LMP and other required scope, determining what extent of the identified scope of work can be delivered for the identified project budget. Once the scope is approved, this work can then proceed into the Design Services Phase.

The base contract work will incorporate a portion of the scope as identified in the Lab Modernization Plan (LMP; PWGSC, 2015/16). The LMP is a series of reports and a design concept for modernizing and recapitalizing the A&L buildings laboratory's on floors 4 through 7, and related areas. Other priority projects identified by EC that are included in the base contract include:

- Renovating Lab W249, which is to be utilized as project laboratory swing space for the duration of implementation of the LMP, and
- Providing a National Building Code of Canada (NBC) 2015 and National Fire Protection Association (NFPA) 13 "Standard for the Installation of Sprinkler Systems" compliant,

fully sprinklered CCIW, including NWRI, WTC and Annex Buildings, as outlined in the Fire Safety Upgrades – Sprinkler System study (WSP, July 2016).

The deliverables for the sprinklering of the building produced based on this Terms of Reference shall:

- Incorporate the WSP Consulting Engineering report, “Life Safety Upgrades Sprinkler System” dated July 26, 2016, to provide a fully sprinklered CCIW-NWRI complex based on WSP Report **Option 1: Building Occupied – After Hours**,
- All Sprinkler work is to occur after normal operating hours.
 - Normal operating hours are as follows:
 - Monday to Friday 07:00 hours to 18:00 hours
 - Saturday Closed
 - Sunday Closed
- All design and construction shall be compliant with the National Building Code of Canada (NBC) 2015 and National Fire Code of Canada (NFC) 2015 and referenced standards.
- referenced standards include but are not limited to:
 - NFPA 13-2016, Standard for the Installation of Sprinkler Systems
 - NFPA 20-2016, Standard for the Installation of Stationary Pumps for Fire Protection
 - CAN/CSA C282-15, Emergency Electrical Power Supply for Building
 - CAN/ULC-S524-14, Standard for the Installation of Fire Alarm Systems
 - CAN/ULC-S537-13, Standard for the Verification of Fire Alarms
- removal of all fire alarm initiating devices made redundant as a result of installed sprinkler system

As the entire complex is presently occupied, the project will take into account strategic phasing and be implemented over a 5-year period, to minimize disruption to EC staff and the public. With the input of the Construction Manager the scope of work will be organized into a series of work packages, which will then be delivered over the course of the project to meet the Client's forecasted cash flow over the 5 years. If the client gets additional funding, there is the possibility that work packages allocated to the 10-year plan could be made part of the scope of the implemented scope.

2.2.2 Optional Services

At the sole discretion of Canada, the Consultant may be required to perform the optional services, identified in the *Description of Services – Optional Services*, during a Master Planning Phase.

Through the Master Planning Services Phase the project team would examine the current space utilization of the facility, determine program and spatial inefficiencies, and develop a new functional program that works to incorporate new and emerging science and technology to better meet the current and future lab users' needs. The project will also provide a study of the existing mechanical, electrical and structural systems of the building, providing the opportunity to replace existing building systems at the end of their effective service lives, gain energy savings, and to better serve current programmes of work and ensure the health and safety of users by meeting current requirements in terms of applicable codes, design standards, guidelines and policies.

The Master Plan would provide a study of the entire facility, including the exterior envelope, setting out 10 and 20-year plans for the facility. These plans will comprise of a series of work packages, outlining the various sub-projects scope, budget, and duration, such that they can be used in the future by EC for the recapitalization of the facility.

Should the optional services be exercised the scope of work would proceed concurrently with the Design Services Phase for the LMP and other identified scope. The project team shall take the LMP into consideration for their Master Planning reports, but don't need to conduct further investigations and reports for the scope covered under these reports.

The Consultant will also have the Sustainable Design Specialist prepare a Sustainability Recommendations report on green initiatives that CCIW will include in the 10 and 20-year Master Plans in order to reduce their footprint and improve their environmental sustainability.

The objectives of the Master Plan shall include, but are not limited to, the following:

1. Investigate the existing conditions and building systems of entire facility;
2. Review studies and documentation and reports including Designated Substance Survey (DSS) report and Asbestos Assessment Report, maintenance history and concerns, potential impact on the existing systems, and health and safety requirements;
3. Meet with and /or interview user groups to identify and evaluate their current and future requirements;
4. Prepare investigation report
5. Develop a plan / strategy for modernizing and recapitalizing the facility;
6. Review and identify EC's current projects in planning, design, and construction phases at CCIW and to integrate them into the plan which includes options, recommendations, and cost analysis.
7. Each option/work package shall include, but is not limited to, the following:
 - a. Floor plans
 - b. Functional Programming
 - c. Feasibility Studies
 - d. Phasing plans including demolition plans and swing space on other floors within CCIW facility
 - e. Interior and exterior elevations

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- f. Schematic architectural details and integrated building systems (structural, mechanical, electrical, life safety, fire protection, etc)
 - g. Project schedule
 - h. Equipment
 - i. Sustainable Development Design Options
 - j. CEAA
 - k. Class C Cost estimate

Further details are provided in the Required Services, Additional Services, and Specialized Services section.

2.2.3 Project Team

The project requires professional multi-disciplinary Project Team with experience in design and construction of laboratory facilities and a good understanding and knowledge of laboratory operations.

On behalf of EC, PWGSC intends to engage a Construction Manager (CM) for advisory and General Contractor services. The Construction Manager (CM) shall work in collaboration with the project team and stakeholders, by providing: advisory input during design, procurement of Subcontractors and the overall construction of the project. The Consultant team shall coordinate and incorporate the input from the CM into the construction documents.

The Consultant shall engage a Commissioning Manager (CxM) to establish and document EC's criteria for system function, performance and maintainability, and to verify and document compliance with these criterion throughout design, construction, start-up, initial period of operation and seasonal testing. The Consultant team shall coordinate and incorporate the commissioning requirements into the construction documents and manage work completed by the CM.

The Consultant shall engage a Sustainable Design Specialist who will assist with ensuring the project meets Sustainable Development Strategy (SDS) commitments and departmental policy requirements with respect to Greening Government Operations.

The Consultant shall provide the services of a Lab Move Coordination advisor to plan and coordinate all the complexities of decommissioning, relocating and reinstalling equipment, while maintaining operations of the laboratories during the project implementation.

PWGSC also intends to engage an Environmental Consultant to create a project specific Hazardous Materials and Designated Substance Survey (DSS) report, conduct further investigations and prepare environmental and abatement specifications, where applicable. The Consultant team shall coordinate and incorporate these specifications describing the scope of work into the construction documents.

The consultant shall note, Shared Services Canada (SSC) is responsible for the installation of IT Cabling. The consultant shall incorporate general cabling supporting infrastructure and telecom room requirements in the design only. Physical cables and associated equipment are to be supplied by others. General Cabling Supporting Infrastructure and telecom room requirements will be made available to the successful proponent.

2.3 Cost

2.3.1 Estimated Construction Costs

The total Estimated Construction Cost for the project is \$18,660,000, including all construction changes, contingencies and escalation, excluding HST. The construction cost estimates do not include Administration costs; Project Management fees; Design Consultant or CM fees. Estimated Construction Cost is in 'Budget-Year (Current)' dollars and it includes General Contractor Services and an allowance for escalation and contingencies.

The approved funding for the *Lab Modernization Plan Implementation and Optional Master Planning Services* project does not cover the entire scope of work identified in the original report, so the Project Team must first work to identify the scope that is feasible for the identified budget.

2.3.2 Tentative Cash Flow

The consultant will divide the scope of work into work packages, which are to be delivered based on the clients required cash flow. This cash flow will be reviewed by the project team and Client at regular intervals and revised as necessary to reflect the most effective delivery of the project.

Construction Costs

B16/17	B17/18	B18/19	B19/20	B20/21	B21/22	Total
\$0	\$2,400,000	\$4,920,000	\$3,780,000	\$3,780,000	\$3,780,000	\$18,660,000*

*These identified construction costs are to include all construction changes, contingencies and escalation

2.4 Tentative Schedule

Activities:		Duration
Consultant Contract Award		Baseline
Phase 1	Pre-Design Services RS 1 Analysis of Project Scope of Work RS 2 Design Concept	10 weeks
Phase 1B**	Optional Master Planning Services OS 1 Functional Programming OS 2 Functional Programming – Master Plan OS 3 Investigations and Reports OS 4 Feasibility Report OS 5 Design Concept – Master Plan OS 6 Sustainability Strategies and Reports	50 weeks**
Phase 2	Design Services RS 3 Design Development RS 4 Construction Documents AS 7 Interior Design	40 weeks
Phase 3	Tender and Construction Services RS 5 Tender Call, Bid Evaluation & Construction Contract Award RS 6 Construction and Contract Administration RS 7 Commissioning RS 8 Post-Construction Warranty Review AS 4 Resident Services During Construction AS 5 Closure Report	220 weeks*
TOTAL		270 weeks

* Project end date is not to go past Mar. 31, 2022

** Services identified under Phase 1B are optional and would start with the consultant contract award and continue concurrently with Phases 1, 2 & 3

This is a multi-year project that is expected to commence in 2016/17, for both the Consultant and Construction Manager (CM), and is projected to continue until year 2022. The tendering process will be done by the Construction Manager and will be organized as separate tendering packages to accommodate the phasing of the project.

The scope of work for the Lab Modernization Plan (PWGSC, 2015) for the upgrades to floors 4 to 7 of the Administration and Laboratory Building has been developed at the Design Concept stage and is expected to be implemented as EC's priority, with five (5) construction phases identified. A portion of this work is to be implemented as part of this project, the scope of which will be determined as part of the first phase. The scope of work for each work packages to be tendered by the CM, are to be developed jointly by the CM and Consultant.

The above time allocations shall take into effect immediately after the award of a contract to the successful proponent. Activity durations are preliminary, and the Consultant is responsible for verifying and confirming the above schedule dates as part of its scheduling mandate (see section **AS 1 – Project Time Planning, Scheduling and Control** for details).

PD 3 PROJECT BACKGROUND

3.1 Project History

Environment Canada's National Water Research Institute (NWRI) is the largest freshwater research facility in Canada. It includes the Canada Centre for Inland Waters (CCIW) located at 867 Lakeshore Road in Burlington, Ontario. The CCIW complex consists of six inter-connected buildings built in 4 phases in the early 1970s, with a total of almost 50,000 square metres of space: the Administration and Laboratory building, the Research and Development building, the Hydraulics Lab, the Boiler Plant, the Warehouse, and the Wastewater Technology Centre. CCIW is owned and operated by Environment Canada (EC).

The CCIW houses the central facilities of the NWRI and other EC programs, including: the Ecosystem Monitoring and Assessment Network (EMAN) coordinating office; Ontario regional offices of EC, including those related to Great Lakes and meteorological programs; and the Wastewater Technology Centre (WTC), specializing in the advancement of environmentally friendly chemistry technologies as well as technologies for the treatment of municipal and industrial wastewater.

CCIW hosts staff from Environment Canada's Water Science and Technology Directorate as well as members of the Department of Fisheries and Oceans. Staff working at the centre includes aquatic ecologists, hydrologists, toxicologists, physical geographers, modelers, limnologists, environmental chemists and research technicians. The National Laboratory for Environmental Testing at the CCIW has fully accredited environmental analysis capability for a wide range of organic and inorganic chemicals, including a specialization in low level metals and the analysis of organic contaminants. In addition to laboratory research, work carried out at the National Laboratory for Environmental Testing involves engineering and technical operations, such as the planning and management of field sampling programs.

3.2 Summary of Pertinent Research, Planning and Recommendations

The CCIW has continued to operate since the 1970's as originally designed and various renovations have taken place over the years. As a result, there are a number of areas within the facility that do not meet current laboratory standards, code requirements, and life and safety requirements.

A Design Concept Report for the Lab Modernization Plan of CCIW was completed in August 2015. This report includes the recommended upgrades to the laboratories and office support space for the 4th floor to the 7th floor of the Administration and Laboratory (A&L) building. The proposed design strategy includes providing for maximum flexibility and adaptability to facilitate current and future operational needs. The design approach includes the use of a standard laboratory plan module, modular and mobile caseworks, as well as overhead service carriers.

There was also a secondary report done as part of the Lab Modernization Plan (March 2016) into the development of a New Building to house the new laboratory spaces, reusing the A&L building for other purposes. This report is provided for information only and does not need to be considered for the purposes identifying the scope of this project.

PWGSC contracted a study of the sprinkler system completed by WSP in July 2016. This report investigates design and implementation methods for a fully integrated sprinkler system in the NWRI complex of the CCIW Facility in accordance with the latest codes and standards specific to life safety and property protection. The feasibility analysis report considers the work necessary to install a new sprinkler system that is compliant to the latest National Building Code (NBC), National Fire Code (NFC) and all other applicable codes and standards in the NWRI complex. Sections of the NWRI complex are sprinklered and components of existing system includes: pre-action systems, dry systems, wet sprinkler systems and clean agent extinguishing systems.

The *Lab Standards, Space Standards and Design Guidelines* by Health Canada and Public Health Agency of Canada (Draft, March 2014) need to be considered for this project. The *Government of Canada Workplace 2.0 Fit-up Standards* should also be followed as design guidelines for the office space and support open and flexible workspaces with collaborative areas.

3.3 Stakeholders

Project Stakeholders include representatives from the following organizations:

- Environment Canada - Client Department / User – Project Leader
- PWGSC - Real Property Branch, Professional and Technical Services - Project Manager

3.4 Site characteristics, Challenges

The Consultant shall:

- Undertake a thorough review of the existing conditions where the work has been identified to ensure safety of the facility;
- Plan in phases the dismantling of the laboratories, relocating staff and equipment, decommission and re-commission equipment;
- All laboratories are currently occupied, and a workable plan for minimal disruption to EC scientists is imperative;
- All noise and dust generating work shall occur after operational hours;
- The duration of all building systems shutdowns shall be minimized and done after operational hours, whenever possible.

3.5 Federal Objectives

The Government of Canada has committed to reducing its environmental footprint, and PWGSC is an active participant in achieving this goal. In passing the Federal Sustainable Development Act in 2008, the government established a new and innovative sustainable development approach. The Act called for a Federal Sustainable Development Strategy (FSDS), to be updated every three years, as well as regular progress reports. The second cycle of the FSDS, covering the period 2013–2016, expands the strategy's whole-of-government picture, more closely aligning sustainable development commitments with departmental performance reporting, and providing a broader range of environmental sustainability indicators to measure progress.

PWGSC's diverse green building commitments are formalized in the department's response to the FSDS, specific targets in past PWGSC SDs, input to PWGSC Report on Plans and Priorities (2012-2013), the department's Sustainable Buildings Policy (Departmental Policy 100), and various Ministerial announcements. These documents contain integrated environmental considerations into the building planning, design and construction stages.

This project must be designed and detailed with due diligence to demonstrate that long term considerations have been examined. These considerations pertain to all building systems. Life cycle analysis must be considered in design, detailing and material selection. Durability and ease of maintenance and equipment replacement must be demonstrated throughout the project.

PD 4 EXISTING DOCUMENTATION

4.1 Existing Documentation – Appendix E

- CCIW Laboratory Modernization Plan:
 - RS 2.1.1 Analysis of Project Scope of Work (Dialog, October 2014);
 - RS 2.1.2 Design Concept Report (Dialog, August 2015);
 - RS 2.2.1 Investigation and Report (Dialog, January 2015);
 - RS 2.2.2 Functional Programming (Dialog, February 2015);
 - RS 2.1.2 New Laboratory Building Analysis at CCIW (Dialog, March 2016);
 - RS 2.2.3 Feasibility Study (Dialog, March 2015).
- Life Safety Upgrades – Sprinkler System (WSP, July 2016).
- Building Condition Report (PWGSC, September 2009)
- Fire Protection Study (3 parts: NWRI, WTC & Annex; LMDG, March 31, 2016).

4.2 Existing Documentation – To be made available to the Successful Consultant

Upon award, copies of all pertinent documentation will be made available to the Consultant.

- Asbestos Assessment Report prepared (Pinchin Environmental, July 2013);
- CCIW Lab Report (EC, October 2011);
- Fire Protection Compliance Monitoring Inspection Report (March 2011);
- Measurement of Existing Airflows for AHU-1, 3, 5, 43 & 44 (March 2015);
- CCIW Air Handling Unit Assessment Report (Filer Engineering, December 2014);
- MD 15128-2013: Laboratory Fume Hoods Guidelines for Building Owners, Design Professionals, and Maintenance Personnel (PWGSC, April 2013)
- MD 15129-2006: Perchloric Acid Fume Hoods and their Exhaust Systems (PWGSC, March 2006)
- National Performance Standards for Office Buildings (NPS, 2016-05-10)
- PWGSC Commissioning Manual (CP.1), latest edition;
- Existing 'As-Built' drawings (EC, original 1970 construction).
- Government of Canada Workplace 2.0 Fit-Up Standards
- Shared Services Canada (SSC) General Cabling Supporting Infrastructure Requirements
- Shared Services Canada (SSC) Statement of Requirements for Telecom Rooms

4.3 Disclaimer

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Reference Information will be available in the language in which it is written. The documentation may be unreliable and is offered, "As is" for the information of the Consultant.

PD 5 PROJECT OBJECTIVES

5.1 Quality

5.1.1 Design Principles – General

- The Consultant shall maintain a high standard of architectural and engineering design, based upon recognized contemporary design principles. All design elements, planning, architectural and engineering, must be fully coordinated and consistent in adherence to good design principles.
- The level of quality is to be consistent with other Government of Canada laboratory buildings.
- The project is to be implemented in an environmentally responsible manner, providing a healthy and safe work environment that meets all applicable codes and supports optimum operations.
- Quality of materials, details and construction methods shall be commensurate with the type of building and allocated budget. The Consultant shall avoid experimental materials and take into account the total life-cycling of the building.
- Operating costs must be kept to a minimum and reflect the projected operating costs in the cost plan. This is to be achieved by compliance with the energy budget, selection of equipment, requiring the minimum of operating personnel and building finishes for easy maintenance.
- The character, massing, scale, materials of this project will be compatible with its surrounding context.
- Design for maximum flexibility in immediate and future use of space.

5.1.2 Design Principles – Specific

Building Standards:

- The Laboratories for EC are to comply to the following:
 - *Lab Standards, Space Standards and Design Guidelines* by Health Canada and Public Health Agency of Canada (Draft, March 2014)
 - Canadian Biosafety Standards and Guidelines:
Web resource: <http://canadianbiosafetystandards.collaboration.gc.ca/>
- The administration office area and its support office space are to comply with the Government of Canada Workplace 2.0 Fit-Up Standards. A copy of the fit-up standards will be made available to the successful proponent.
- For commissioning activities and documentation refer to PWGSC Commissioning Manual (CP.1), latest edition.
- The Telecom Room, Cabling Infrastructure and Conduit Requirements are to comply with the following Shared Services requirements:

- General Cabling Supporting Infrastructure Requirements
- Statement of Requirements for Telecom Rooms

5.2 Sustainable Development

The modernization of the CCIW complex shall be aligned with the Federal Sustainable Development Strategy (FSDS) and federal government's framework for sustainability. Priorities should be given in the planning of the project for life cycle assessments, improve indoor environment quality and performance of the buildings, promote water conservation, reduce energy usage and greenhouse gas emissions, and use durable and low environmental impact materials, finishes and furniture. The consultant team will include a Sustainable Design Specialist to guide this process.

The requirements for LEED Commercial Interiors (CI) Silver or equivalent Green Globe (GG) targets should be considered as a minimum performance measurement for the project. The optional Master Planning of the facility shall also compare the requirements for meeting Gold and/or Platinum or GG 4 etc. The selection of the appropriate green building evaluation tool and certification could be sought upon direction from EC.

5.3 Designated Substances and Hazardous Materials and Environmental Restrictions

Designated Substances and Hazardous Materials have been identified at this site through various audits of the building, refer to existing documentation for information. PWGSC will engage an Environmental Consultant after the project scope is defined to review the Designated Substance and Hazardous Materials Survey (DSHMS), conduct further investigations, issue a new report for the identified scope, and prepare environmental and abatement specifications. The Consultant team shall coordinate and incorporate these specifications describing the scope of work into the construction documents.

An asbestos-containing building materials assessment of the facility was conducted in July 2013. This assessment was performed for long term management of the asbestos not for construction nor renovation purposes at the time of assessment. The asbestos assessment report dated July 12, 2013 indicates the following:

Asbestos was confirmed or visually presumed to be present in the following building materials:

- Texture finish
- Pipe insulation
- Mechanical insulation
- Duct insulation
- Plaster
- Drywall joint compound
- Asbestos cement (Transite)

- Vinyl sheet flooring
- Vinyl floor tiles
- Bakelite

5.4 Waste Management

The Project will be implemented in an environmentally responsible manner.

The Construction Renovation and Demolition (CRD) waste management practices are to be carried out in line with industry standards to support Federal Sustainable Development Strategy, and at minimum should seek to reuse and/or recycle all possible materials where local services and markets exist, and should ensure that CRD waste management practices meet any provincial regulations, city and/or municipal bylaws concerning CRD waste.

For all Real Property Branch projects greater than \$1 million, a solid waste management program must be implemented to maximize reuse and recycling opportunities where the infrastructure exists. This requirement exists by regulation in the province of Ontario for projects greater than 2,000 m² (O. Reg. 102/94 and 103/94) and by policy for the rest of Canada. It is a PWGSC best practice to achieve a minimum landfill diversion rate of 75%.

The Consultant shall work with the Environmental Consultant to develop a waste management program to comply with applicable provincial regulations and federal policies, including but not limited to the following:

1. The Consultant shall prepare NMS specifications reflecting non-hazardous waste management requirements and maximizing waste diversion potential to direct the reuse, recycling and final disposition of project waste materials (NMS specification 01 74 20).
2. The Consultant shall include provisions to prepare a waste management plan in compliance with the PWGSC CRD Non-Hazardous Waste Management Protocol for review and approval during preparation of construction documents, prior to project start.
3. The Consultant shall include provisions to verify the implementation of the waste management plan throughout the project by monitoring, tracking and reporting on achieved waste diversion efforts and final results, to be reported in a Final Waste Diversion Summary Report at the end of the project.

5.5 Code Compliance

Codes, regulations, by laws and decisions of "authorities having jurisdiction" must be observed. National model codes, acts and standards must be observed. PWGSC and EC Departmental Policies, Directive and Standards must be adhered to. The Consultant shall utilize the latest editions of the applicable codes, standards, guidelines, regulations, and by-laws, including but not limited to the following:

1. National Building Code of Canada;
2. National Fire Code of Canada;
3. National Plumbing Code of Canada;
4. Canadian Electrical Code;
5. Canada Labour Code;
6. Treasury Board of Canada Secretariat, Directives and Standards;
7. Canada Occupational Health and Safety Regulations;
8. Environment Canada Codes of Practice;
9. National Energy Code of Canada for Buildings;
10. Lab Standards, Space Standards and Design Guidelines, by Health Canada and Public Health Agency of Canada;
11. PWGSC Federal Office Building Standards;
12. Government of Canada Workplace 2.0 Fit-up Standards;
13. Canadian Standards Association, Standards and Guidelines;
14. ANSI, ASHRAE, ASTM, AWMAC, FM, MPI, TSSA, ULC Standards;
15. Provincial Codes and Municipal Codes and By-Laws, as applicable.

Authorities having jurisdiction shall review the design in order to obtain and apply approvals and permits required for the project. In cases of overlap, the most stringent requirements will apply. Refer to PWGSC document "Doing Business with PWGSC" attached in Appendix D for a minimal list of applicable codes, regulations, standards and guidelines.

The following Codes, Regulations and Standards listed may apply to this project. The Commissioning Manager, in collaboration with the Consultant must be aware of these documents and their effect on the commissioning process, documentations and deliverables (the most stringent Codes, Regulations and Standards shall apply):

1. PWGSC Commissioning Manual (CP.1) and Guidelines (CP.3 to CP.13), latest edition
2. CSA Z320-11 – Building Commissioning Standard and Check Sheets
3. PWGSC MD 15000 – Mechanical Environmental Standards for Federal Office Buildings
4. PWGSC MD 15116 – Computer Room Air-conditioning
5. PWGSC MD 15128 – Laboratory Fume Hoods
6. PWGSC MD 15161 – Design Guideline for Control of Legionella
7. PWGSC MD 15200 – Re-Commissioning Manual for Buildings 2011
8. PWGSC Fit-up Standard – Workplace 2.0 – April 2012
9. Canadian Biosafety Standards and Guidelines, first edition
10. CAN CSA-B651-12 – Accessible Design for the Built Environment
11. CAN/ULC-S536-04 – Inspection and Testing of Fire Alarm Systems
12. CAN/ULC-S537-04 – Verification of Fire Alarm Systems
13. CSA C22.2 No.151-M1986 (R2004) Laboratory Equipment
14. CSA Z316.5-04 (R2009) – Fume Hoods and Associated Exhaust Systems
15. ASHRAE Guideline 0-2005 – The Commissioning Process
16. ASHRAE Guideline 1.1-2007 – The HVAC Commissioning Process

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17. ASHRAE/IES Standard 202-2013 – Commissioning Process for Buildings and Systems
 18. NEBB Procedural Standards for Whole Building Systems Commissioning
 19. NEBB Procedural Standards for Fume Hood Performance Testing
 20. AABC National Standards for Total System Balance 2002
 21. AABC Test and Balance Procedures
 22. NFPA 13-2016, Standard for the Installation of Sprinkler Systems
 23. NFPA 20-2016, Standard for the Installation of Stationary Pumps for Fire Protection
 24. CAN/CSA C282-15, Emergency Electrical Power Supply for Building
 25. CAN/ULC-S524-14, Standard for the Installation of Fire Alarm Systems
 26. CAN/ULC-S537-13, Standard for the Verification of Fire Alarms

5.6 Risk Management

A risk management strategy is crucial for PWGSC Project Management and integrates project planning into procurement planning. All the stakeholders of a project will be an integral part of the risk management strategy, culminating in an integrated product team. Specific services required for project delivery are outlined in Required Services.

5.7 Health and Safety

PWGSC recognizes the responsibility to ensure the health and safety of all persons on federal construction projects and the entitlement of both federal employees and private sector workers to the full protection afforded them by occupational health and safety regulations.

In keeping with the responsibility and in order to enhance health and safety protection for all individuals on federal construction sites, PWGSC will voluntarily comply with the applicable provincial/territorial construction health and safety acts and regulations, in addition to the related Canada Occupational Health and Safety Regulations.

PD 6 ISSUES

6.1 Major Cost Issues

Effective cost estimating and cost control is of prime importance and shall be provided by professional quantity surveyors. The Class 'C' and Class 'B' cost estimates shall be submitted in elemental cost analysis format. The standard of acceptance for this format is the current issue of the elemental cost analysis format issued by the Canadian Institute of Quantity Surveyors.

The Class 'A' cost estimate shall be submitted in trade cost breakdown format. Cost estimates shall have a summary, plus full back-up showing items of work, quantities, unit prices, and amounts.

Refer to AS2 Estimating and Cost Planning section and PWGSC document "Doing Business with Public Works and Government Services Canada" attached in Appendix D for more detailed information.

6.2 Major Phasing Issues

EC is concerned with phasing the work to minimize disruptions to employees and building services. Their urgent operational requirements may affect the work plan. The Consultant and CM will work together to devise a phasing plan which will cover the decommissioning the equipment, moving the equipment to a temporary storage area, relocating and reinstalling laboratory equipment in the renovated laboratories and maintaining functional operations of the organization throughout the duration of the construction. Coordination and scheduled phasing plans will be required.

The assistance of a Lab Move Coordinator will facilitate discussions during design development, and organize planning activities for EC to manage their operations and relocate staff during the implementation of the project. The challenge for relocating the staff is that swing space is limited. Options for swing space will need to be investigated.

6.3 Documentation of Existing Facility

The as-built documents, drawings and building conditions reports for the facility may be found to be inaccurate. As such, unforeseen site conditions could potentially increase the project cost and delay the project completion. The Consultant shall verify all on-site conditions to update the master drawings in order to help mitigate this issue.

PD 7 CONSULTANT SERVICES

Consultant shall provide all the required services listed either as part of their in-house expertise and/or a combination of in-house resources and sub-consultants/specialists.

The Consultant team for this project must be capable of providing the following services:

- Architecture;
- Project Management;
- Structural Engineering;
- Mechanical Engineering;
- Fire Protection and Life Safety Systems Engineering;
- Electrical Engineering;
- Commissioning Manager;
- Specification Writing;
- Cost Estimating;
- Planning and Scheduling;
- Functional Programming;
- Lab Move Coordination;
- Lab Specialist;
- Building Code Specialist;
- Risk Management;
- Sustainable Design;
- Information Technology;
- Building Envelope;
- Interior Design.

7.1 Services

The Consultant shall provide, but is not limited to, the following services:

Required Services

- RS 1 Analysis of Project Scope of Work
- RS 2 Design Concept
- RS 3 Design Development
- RS 4 Construction Documents
- RS 5 Tender Call, Bid Evaluation & Construction Contract Award
- RS 6 Construction and Contract Administration
- RS 7 Commissioning
- RS 8 Post-Construction Warranty Review

Additional Services

- AS 1 Project Time Planning, Scheduling and Control

- AS 2 Estimating and Cost Planning
- AS 3 Risk Management
- AS 4 Resident Services During Construction
- AS 5 Closure Report
- AS 6 Laboratory Move Coordination Advisory Services
- AS 7 Interior Design

Specialized Services

- SS 1 Sustainable Design Specialist
- SS 2 IT / Telecommunications Specialist
- SS 3 Building Code Specialist
- SS 4 Commissioning Manager (CxM)

Optional Services

- OS 1 Functional Programming only (for entire facility)
- OS 2 Functional Programming - Master Plan (for entire facility)
- OS 3 Investigations and Reports
- OS 4 Feasibility Report
- OS 5 Design Concept - Master Plan
- OS 6 Sustainability Strategies and Reports

7.2 Consultant Contract Approach

The overall architectural services to be provided by the Consultant shall be delivered in 3 phases, as follows:

Phase 1 Pre-Design Services

- RS 1 Analysis of Project Scope of Work
- RS 2 Design Concept

Phase 1B* Optional Master Planning Services

- OS 1 Functional Programming
- OS 2 Functional Programming – Master Plan
- OS 3 Investigations and Reports
- OS 4 Feasibility Report
- OS 5 Design Concept – Master Plan
- OS 6 Sustainability Strategies and Reports

Phase 2 Design Services

- RS 3 Design Development
- RS 4 Construction Documents

Phase 3 Tender and Construction Services

- RS 5 Tender Call, Bid Evaluation & Construction Contract Award
- RS 6 Construction and Contract Administration
- RS 7 Commissioning
- RS 8 Post-Construction Warranty Review
- AS 4 Resident Services During Construction
- AS 5 Closure Report

All other Services are to be delivered throughout the length of the project.

* Note: These identified services are optional. Canada reserves the right to exercise these Optional Services, or part thereof, under this Agreement, or to contract separately with other firms/Consultants. Optional Services are to begin when exercised and be delivered concurrently with the rest of the work.

The base contract will be for required, additional, and specialized services identified under Phases 1, 2 & 3. If Optional Service 1B is exercised then the services would begin concurrently with Phase 1.

DESCRIPTION OF SERVICES

PA 1 PROJECT ADMINISTRATION

INTENT

The following administrative requirements apply during all phases of project delivery.

1.2 Departmental Representative

The PWGSC Project Manager assigned to the project is the Departmental Representative (DR).

The Departmental Representative is directly concerned with the project and responsible for its progress. The Departmental Representative is the liaison between the Consultant, PWGSC, and the Client Department.

PWGSC administers the project and exercises continuing control over the Consultant's work during all phases of development. Unless directed otherwise by the Departmental Representative, the Consultant obtains all Federal requirements and approvals necessary for the work.

1.2 Client Department

Environment Canada (EC) is the Client Department for this project, and will provide design approvals and quality reviews and acceptance. EC will work closely with the Departmental Representative to define the project scope of work and requirements, facilitate access to the site and support the Project Team.

1.3 Shared Services Canada (SSC)

Shared Services Canada (SSC) is the government department responsible for all IT cabling. SSC designs, supplies, and installs all IT cabling on this project. The consultant shall incorporate general cabling supporting infrastructure and telecom room requirements in the design only. Physical cables and associated equipment are to be supplied by others (SSC). General Cabling Supporting Infrastructure and telecom room requirements will be made available to the successful proponent. SSC will supply an IT cabling location plan, based on the floor and furniture plans developed by the Consultant, for design of the cabling infrastructure.

1.4 Correspondence

All correspondence related to this project and communication protocol shall be distributed as directed and approved by the Departmental Representative. All communications must carry the

Contract name/number, PWGSC project title and project number. The date format will be yy-mm-dd. All email correspondence must have subject lines with the PWGSC project number and wording of subject line must be clear.

1.5 Lines of Communication

The Consultant shall correspond only with the PWGSC Project Manager. The Consultant is to communicate with the client department or other PWGSC staff regarding project issues, only if authorized to do so, by the PWGSC Project Manager.

PWGSC requires a single point of contact from the Consultant team that will be communicating with the Departmental Representative (PWGSC Project Manager).

1.6 Media

The Consultant shall not respond to requests for project related information or questions from the media. Such inquiries are to be directed to the Departmental Representative.

1.7 Codes and Standards

The Consultant shall comply with the latest addition of all statutes, codes, regulations, and by-laws applicable to the design and where necessary, shall review the design with that Public Authorities Having Jurisdiction in order that the consents, approvals, licenses and permits required for the project may be applied for and obtained. Unless otherwise advised federal codes and standards will govern.

The Consultant shall identify all jurisdictions appropriate to the project.

1.8 Health and Safety

The Consultant shall abide by the current Occupational Health and Safety Act and Regulations and Environmental Acts and Regulations.

1.9 Sustainable Development

The Consultant shall be conscious of PWGSC's diverse green building commitments (as outlined in PD 3, Section 3.5 – Federal Objectives), and incorporate them into the project.

1.10 Security Screening Requirements

There are no security requirements for this project.

1.11 Project Meetings

The Consultant shall arrange meetings throughout the entire project development period to occur at 867 Lakeshore Road, Burlington, Ontario, as follows, for all members of Project Team, including representatives from:

- Environment Canada (EC);
- Public Works and Government Services Canada (PWGSC);
- Consultants;
- Construction Manager (CM);
- Commissioning Manager (CxM);
- Environmental Consultant, when required.

The Consultant shall make plans for a meeting following each submission and as required to resolve design issues, and include one meeting during the Tender Phase and a meeting every two weeks during the Construction Administration Phase.

The following occurrence of meetings is estimated per phase as follows:

Pre-Design Services	every two (2) weeks
Design Services	every two (2) weeks and after each review of submission
Tender and Construction Services	every two (2) weeks

The Consultant is to identify the meetings in the proposed project schedule for review by the Departmental Representative.

The Consultant shall attend the meetings, record the issues and decisions, and prepare and distribute minutes within 48 hours of the meeting. The Consultant shall create and maintain a list of outstanding action items and outstanding issues, and include these lists within the minutes of the meeting.

1.12 Project Response Time

It is a requirement of this project that the key senior personnel of the successful proponent and sub consultant and/or specialist firms be personally available to attend meetings or respond to inquiries within two (2) days. All personnel should also identify a back-up, such that someone is available should the key personnel be unavailable.

1.13 General Project Deliverables

- Where deliverables and submissions are required for this project, they shall be submitted in accordance with this Project Brief.

- All specifications and drawings will be generated and distributed in the format using layering and file protocols as prescribed in the “Doing Business with Public Works and Government Services Canada”, attached as Appendix D.
- Unless otherwise indicated in the Project Brief, provide six (6) copies of all deliverables plus one digital version in a format using PWGSC operational platforms such as: Microsoft Word and Excel, Microsoft project, Auto CADD 2010 or latest version and NMS latest version. In addition, provide a PDF electronic copy of all final reports and contract documents in Adobe PDF version 7.0 or approved version. All submissions and digital documents shall be stamped and signed by a Professional for their respective discipline: Licensed Architect in Ontario (OAA member), Professional Engineer (P. Eng) for engineering disciplines.
- For the submission standards and requirements at each project delivery stage relating to the services provisions herein, refer to PWGSC document “Doing Business with Public Works and Government Services Canada” attached as Appendix D.

All documents are to be produced in the amounts and types shown below and at the project delivery stage as follows:

Delivery Stage	No of Hard Copies	No of CADD files	No of PDF files*	NMS Format (Dwgs and specs)
Reports, Functional Programming, Feasibility	6	1	2	
Design Concept	6	1	2	
Design Development	6	1	2	
Construction Documents	6	1	2	1
Tender Drawings	8	1	2	1
Tender Specifications	8 bound and 1 unbound	1	2	1
Issued for Construction Documents	8	1	2	1
Record Documents (As-built if applicable)	6	1	2	1
Commissioning Document	6	1	2	1

*Note: Submit file in PDF format on copy via e-mail and another copy on a CD with the other required files.

1.14 Acceptance of Consultant Deliverables

- While PWGSC acknowledges the Consultant's obligations to meet project requirements, the project delivery process entitles PWGSC to review the work. PWGSC reserves the right to reject undesirable or unsatisfactory work. The Consultant must obtain Departmental Representative acceptances during each of the project stages.
- Acceptances indicate that based on a general review of material for specific issues, the material is considered to comply with governmental and departmental objectives and practices, and that overall project objectives are being satisfied.
- The acceptance does not relieve the Consultant of professional responsibility for the work and compliance with the contract.
- PWGSC acceptances do not prohibit rejection of work, which is determined to be unsatisfactory at later stages of review. If progressive design development or time / cost /risk updates or technical investigation reveals that earlier acceptances must be withdrawn (as a result of undiscovered Consultant's mistake, error or disregard of requirements/requests), the Consultant is responsible for redesigning work and resubmitting for acceptance at the Consultant's cost.
- Acceptances by the Client Department and other agencies and levels of government must be obtained to supplement PWGSC acceptances. The Consultant shall assist the Departmental Representative in securing all such acceptances and adjust all documentation as required by such authorities when securing acceptance

1.15 Submissions, Reviews and Approvals

Work in progress is to be reviewed by the Departmental Representative and Client Department as follow:

PWGSC and EC (User) review

- Submission Format: report, drawings and specifications and samples.
- Submission Schedule: Submissions are reviewed when completed work has been forwarded to the Departmental Representative.
- Expected Turnaround Time: 2 weeks.
- Number of Submissions: until approval has been received.

REQUIRED SERVICES

RS 1 ANALYSIS OF PROJECT SCOPE OF WORK

1.1 INTENT

The purpose of this stage is to ensure the Consultant has reviewed and integrated all the project scope of work and requirements, identified and evaluated conflicts or problems, provide alternative strategies, presented and received approval on Project scope, delivery process, schedule and estimate required to deliver a cohesive quality project. This approved deliverable will become the Project Scope of Services and will be utilized throughout the project to guide the delivery. If optional services are exercised, the scope for this Required Service would include the entire facility.

1.2 SCOPE AND ACTIVITIES

The Consultant shall:

1. Attend project start up meeting with the Client (EC) and PWGSC.
2. Visit the building / site and review:
 - a. Existing conditions for the A&L building and all other areas which are affected by the work or that might require work to ensure safety of the facility and its occupants
 - b. Existing structural, electrical, mechanical, water and heating systems.
 - c. Maintenance history and concerns, and existing life cycle of mechanical systems.
 - d. Health and safety requirements.
3. Review all existing documentation, including, but not limited to the CCIW Laboratory Modernization Plan report,
4. Review proposed project milestone dates and advise the Departmental Representative.
5. Verify what scope of Laboratory Modernization Plan report and other identified projects is achievable for the identified budgets.
6. Review estimated budget for verification that the costs are achievable.
7. Review and identify the codes, regulations and standards that apply to the project.
8. Review the Designated Substance Survey (DSS) report and determine the impact to the project scope and schedule, and identify areas that require additional surveys.
9. Identify additional and/or specialized services that may be required. Advise the Departmental Representative of any services and/or testing services that are not included.

1.3 DELIVERABLES

The Consultant shall provide a comprehensive summary of the project requirements and scope of work including but not limited to the following:

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R.077680.001

Amd. No. - N° de la modif.

File No. - N° du dossier

PWL-6-39095

Buyer ID - Id de l'acheteur

pwl041

CCC No./N° CCC - FMS No/ N° VME

-
1. Report on the existing conditions, recommendations for remediation with options and projected schedule, any deficiencies and life expectancy.
 2. Confirmed or adjusted project cost and time plans.
 3. Written identification of the problems, conflicts or other perceived information/clarifying assumptions for the acknowledgment of the Departmental Representative.

RS 2 DESIGN CONCEPT

2.1 INTENT

To translate the existing LMP Design Concept, schematic sprinkler plan and other identified project requirements into a scope that can be delivered for the identified budget. To explore design options and analyze them against priorities and program objectives previously identified.

2.2 SCOPE AND ACTIVITIES

The Consultant shall:

1. Present alternative design options for scope of work, which are viable and have potential for development;
2. Analyze each solution with regard to the project goals including cost and schedule;
3. Recommend one option for further development with all supporting background and technical justifications.
4. Submit to the Departmental Representative, design concept documents in sufficient detail to illustrate the design concept and to demonstrate compliance with the Project requirements
5. Submit a preliminary Construction Cost Estimate, Cost Plan and Project Schedule to confirm the feasibility of the Project;
6. Provide copies of all design concept documents in the type and number specified in 1.13 General Project Deliverables
7. Develop alternative solutions which accommodate the Client User Program, and adhere to the project budget. Drawings will include analytical diagrams, schematic bubble diagrams, plans, elevations, and sections, room names and sizes. Perspective sketches may be requested;
8. Provide option analysis, complete with life cycle cost analysis; and

2.3 DELIVERABLES

The Consultant shall provide the following:

1. Design Concept Drawings of all disciplines;
2. Description of the options with recommendation of preferred solution;
3. Class 'C' Estimate;
4. Report on deviation from schedule and recommend corrective measures or updated time line.

2.4 DELIVERABLES - DETAILS

The Consultant shall provide the following:

2.4.1 Architectural:

1. Site plan showing building outlines, orientation, main accesses and traffic patterns;
2. Schematic building plans of alternatives showing relative disposition of administration and laboratory areas, circulation patterns, building areas, numbers of floors, etc.
3. Sketch elevations and sections indicating basic design approach and aesthetic philosophy;
4. Outside gross building areas and summary of main accommodation areas required and proposed;
5. Horizontal and Vertical space relationships;
6. Preliminary phasing plans.

2.4.2 Structural:

1. Proposed or alternative structural systems where applicable.

2.4.3 Mechanical:

1. Include a description of specific mechanical requirements and function for each area (room) in the buildings, along with a schedule of requirements listing all rooms and identifying the mechanical building services to be provided;
2. Explain in the concept submission the manner in which the proposed mechanical systems correlate with user requirements;
3. Identify the delivery rate of supply air to occupied spaces;
4. Identify location of entry point into the building of all mechanical services into each building;
5. Identify in square metres the area to be provided for mechanical rooms, and identify the percentage of total building area this represents. Identify location of mechanical spaces in each building.
6. Provide an analysis of alternative mechanical schemes at the conceptual design stage that reveals energy consumption of building systems, operating and maintenance costs on a month by month basis for a time span of one year. The estimated energy, operating and maintenance costs shall be used in life cycle cost analyses on a projected building life of 25 years to determine the most beneficial mechanical systems alternative.
7. Carry out energy analyses on system alternatives;
8. Establish an energy budget for the building and compare it to energy consumption of other similar buildings. Total energy consumed in the building shall be expressed in MJ/m²
9. Submit a complete energy analysis as described in this section.
10. List any non-Canadian products and materials proposed for the project with a written justification.

2.4.4 Electrical:

1. Proposed basic electrical systems of significance to the early design;
2. Site plan showing location of service entrances;
3. Distribution diagram showing single line diagrams to distribution centres;
4. Floor plans complete with locations of major electrical equipment and distribution centres, power outlets, lighting, and telecommunications that are impacted by this project;
5. A list of equipment with power requirements;
6. Provide an electrical design synopsis with cost figures and loads, describing the electrical work in sufficient detail for assessment and approval by the Departmental Representative.
7. List any non-Canadian products and materials proposed for the project with a written justification.

2.4.5 Commissioning:

1. Develop scope of work / terms of reference to engage a Commissioning Manager (CxM).

2.4.6 Sustainable Development

1. Design and evaluate Design Options exploring positive environment strategies.

2.4.7 Designated Substances Survey

1. Review Designated Substances and Hazardous Materials Survey for any impact to the design and performance of the building systems and inform the Departmental Representative of any issues;
2. Identify areas within the project parameters where additional sampling of existing materials may be required, and develop scope of work / terms of reference to engage an environmental Consultant;
3. If abatement is required, coordinate with project scheduler and other disciplines for impact to the scope of work. The environmental consultant will prepare abatement drawings and specifications to be included into the project tender documents and monitor the site.

RS 3 DESIGN DEVELOPMENT

3.1 INTENT

To further develop work presented at the Design Concept stage. The Design Development documents consist of drawings and other documents to describe the size and character of the project as to architectural, structural, mechanical and electrical systems, materials and such other elements as may be appropriate.

3.2 SCOPE AND ACTIVITIES

The Consultant shall:

1. Obtain written approval from Departmental Representative for development of the final conceptual design option.
2. If any alterations are demanded, document all required changes, analyze the impact on all project components, and resubmit for approval if required.
3. Expand and clarify the Concept Design intent for each design discipline in sufficient details.
4. Present the design materials to the client, design review or other committees as indicated by the Departmental Representative.
5. Continue to review all applicable statutes, regulations, standards, guidelines, codes and by-laws in relation to the project.
6. Present the design to the government authorities having jurisdiction or local authorities where required.
7. Refine the approved conceptual design option to a level of detail which will facilitate Class B Cost Estimates, design review and discussions with the Client Department.
8. Analyze the constructability of the project and advise on the construction process, phasing strategy and duration.
9. Based on all material available at the time, prepare a milestone schedule for the consideration with special attention to the impact on occupants.
10. Provide a list and draft specification sections of all NMS sections to be used. Submit outline specifications for all systems and principle components and equipment.

3.3 DELIVERABLES

The Consultant shall provide:

1. Site Plan;
2. Phasing Plans;
3. Demolition Plans;

4. Floor plans including all disciplines showing all floor elements and services to detail necessary to make all design decisions and to substantially estimate the cost of the project
5. Reflected ceiling plans;
6. Elevations;
7. Sections and details;
8. Summary of assemblies, materials, finishes and colour schemes;
9. Schedules: Frames and Screens, Door Hardware;
10. List of equipment identifying existing or new, type, mechanical and electrical requirements, storage location and proposed final location, who will install and when;
11. Outline specifications for all systems and principle components or equipment, identifying all applicable NMS divisions;
12. A Class B cost estimate;
13. Preliminary construction schedule including long term delivery items;
14. Fire Protection Engineers report including requirements, strategies or interventions for protection of the building and its occupants;
15. Project dossier detailing the basic assumptions of the project and the justifications for all major decisions;
16. Commissioning Brief to be part of Commissioning Plan, along with Design Intent Brief

3.4 DELIVERABLES - DETAILS

The Consultant shall provide:

3.4.1 Architectural:

1. Site plan showing the buildings, traffic pattern, parking, grading and landscaping;
2. Phasing plans;
3. Demolition plans;
4. Floor plans of each floor showing all accommodation required, including circulation and program areas. Indicate building grids, modules, and key dimensions on floor plans;
5. Furniture, millwork, lab casework, and equipment plans;
6. Sections and details of millwork and lab casework;
7. Reflected ceiling plans coordinating all ceiling mounted or recessed elements from all disciplines;
8. Elevations of all exterior building facades, showing all doors and windows accurately sized and projected from the floor plans and sections, floor and ceiling levels and any concealed roof levels;
9. Cross sections through the buildings showing floor levels, room heights, inner corridor or court elevations;
10. Interior elevations of all laboratories to assist in identifying details and in coordinating mechanical and electrical services;
11. Detail sections of walls or special design features requiring illustration or explanation.

3.4.2 Structural:

1. Drawings indicating the proposed structural framing system, structural materials, and other significant and/or unusual details including but not limited to the following:
 - a. Support framing and details for equipment and screens;
 - b. Framing details of new floor openings and in-fill of existing openings;
 - c. Seismic design and details where applicable.

3.4.3 Mechanical:

1. Site plan showing service entrances for water supply, sanitary and storm drains and connections to public utility services, including all key invert elevations;
2. Drawings showing preliminary sizing of ventilation, cooling and heating systems, showing locations and all major equipment layouts in mechanical rooms;
3. Drawings of plumbing system, showing routing and sizing of major lines and location of pumping and other equipment where required;
4. Drawings of the fire protection systems showing major components;
5. Preliminary designs based on the approved concept, with updated energy analysis and energy budget established at the concept design stage;
6. Updated schedule of requirements;
7. Information on all internal and external energy loads in sufficient detail to determine the compatibility of the proposal with existing services, approved concept and energy budget;
8. Analysis of selected equipment and plant with schematics and calculations sufficient to justify the economy of the selected systems;
9. A description of the mechanical systems to be provided and the components of each system, including the perceived operation of the mechanical systems;
10. What operating staff will be needed to operate the building systems and the expected functions of the operation staff;
11. Preliminary EMCS network architecture, mechanical control schematics and sequence of operation;
12. Acoustical and sound control measures are to be included in the design.
13. Calculations and Schedules (valves, diffusers, filters, dampers);
14. Air flow directions;
15. Waste and vent piping, plumbing supply distribution;
16. Details, HVAC controls, DDC Points List, Control Devices;
17. List of equipment with mechanical requirements.

3.4.4 Electrical:

1. Single line diagram of the power circuits with their metering and protection, including:
 - a. Complete rating of equipment;
 - b. Ratios and connections of CT's and PT's;
 - c. Description of relays when used;

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- d. Maximum short circuit levels on which design is based;
 - e. Identification and size of services;
 - f. Connected load and estimated maximum demand on each load centre.
 2. Electrical plans with:
 - a. Floor elevations and room identification;
 - b. Legend of all symbols used;
 - c. Circuit numbers at outlets and control switching identified;
 - d. All conduit and wire sizes except for minimum sizes which should be given in the specification;
 - e. A panel schedule with loadings for each panel.
 - f. Telephone conduit system layout for ceiling/floor distribution.
 3. Riser diagrams for lighting, power, telephone and telecommunication cable systems, fire alarm, and other applicable systems.
 4. Elementary control diagrams for each system.
 5. Schedule for motor and controls.
 6. Complete lighting layout and fixture schedule clearly indicating methods of circuiting, switching and fixture mounting.
 7. Electric heating layout and schedule.
 8. List of equipment with power requirements.
 9. Provide the following data:
 - a. Total connected load;
 - b. Maximum demand and diversity factors;
 - c. Sizing of standby load;
 - d. Short-circuit requirements and calculations showing the ratings of equipment used.

3.4.5 Commissioning:

1. Define operational requirements and lab function based on design intent of the facility;
2. Define Commissioning Requirements with CxM.
3. Prepare a Commissioning Brief for commissioning requirements including objectives, scope, user requirements, roles and responsibilities.
4. Prepare a design intent brief, to be included with the Commissioning Brief, describing the building systems that will require major commissioning activities for mechanical, electrical and integrated system testing.
5. Coordinate requirements with Commissioning Plan prepared by CxM
6. Define and establish project specific archives.

3.4.6 Designated Substances

1. PWGSC will provide the Consultant with the designated substances and hazardous materials survey report and specifications.
2. Coordinate with project scheduler and other disciplines for impact to the scope of work.

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Buyer ID - Id de l'acheteur

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CCC No./N° CCC - FMS No/ N° VME

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3. Incorporate abatement drawings and specifications into the project tender documents where applicable.

RS 4 CONSTRUCTION DOCUMENTS

4.1 INTENT

To prepare drawings and specifications for the scope of work setting forth in detail the requirements for the construction and final cost estimate of the project. This project will be delivered through Construction Management, to accelerate the delivery schedule. The consultant shall determine the breakdown of work for each work package in consultation with the CM.

1. 50% indicates 50% completeness of all working documents per work package;
2. 75% indicates substantial technical development of the project per work package - well advanced architectural and engineering plans, details, schedules and specifications;
3. 99% is the submission of complete Construction Documents per work package ready for tender call and submission to local authorities for pre-permit purposes;
4. Develop project specific Standard Operating Procedures (SOP) Manual;
5. Final Submission incorporates all revisions required in the 99% version work packages and is intended to provide PWGSC with complete construction documents work packages for tender call.

4.2 SCOPE AND ACTIVITIES – GENERAL

The Consultant shall:

1. Obtain Departmental Representative's approval for each submission.
2. Confirm format of drawings and specifications;
3. Clarify special procedures (i.e. phased construction);
4. Submit drawings and specifications at the required stages 50%, 75%, 99%, and Final Tender Documents) in accordance with applicable code, standards, guidelines, regulations and by-laws;
5. Provide written responses to all review comments and incorporate them into Construction Documents where required;
6. Finalise Commissioning Brief and implement Commissioning Plan requirements into construction documents;
7. Coordinate scope of work regarding designated substances into the construction documents;
8. Submit an updated Class B estimate at 75% completion and Class A estimate at 99% completion per work package . If required, perform value engineering and modify design at the Consultant's cost to stay within budget.
9. Update the project schedule;
10. Review and approve materials and construction processes specifications to meet sustainable development objectives.

4.3 SCOPE AND ACTIVITIES - DETAILS

4.3.1 Technical and Production Meetings

1. Production of construction documents will be reviewed during the meetings arranged by Departmental Representative and Consultant.
2. Representatives from Client Department and PWGSC support staff will be present as arranged by Departmental Representative.
3. Consultant shall ensure that his staff and the sub-consultant representatives attend the technical and production meetings as required.
4. Consultant shall arrange for all necessary data and progress prints.
5. Consultant shall prepare minutes of the meetings and distribute copies to all participants.

4.3.2 Progress Review

1. As work progresses on construction drawings, submit drawings, schedules, details, pertinent design data and updated Cost Plan and Project Schedule as required.
2. Mechanical and electrical:
 - a. Flow diagrams, system layouts, equipment selections and sizes, floor plan layouts showing major equipment.
 - b. All major ductwork sized and shown on drawings including layout of all major mechanical and transformer rooms.
 - c. EMCS network architecture, mechanical control schematics, sequence of operation for each mechanical system, electrical control schematics, DDC input/output point schedules.
 - d. Update the energy analysis and energy budget.
 - e. Submit at the stipulated progress submission all calculations for mechanical design and equipment selection. These calculations shall be bound (3-ring binder) and indexed.
3. Calculations submitted shall not necessarily be reviewed. They are required for record purposes and in certain instances to assist in the understanding and interpretation of designs.
4. Calculations shall be submitted in a format that is legible, neat and easily understandable.
5. Specifications and an index of specifications. The specifications shall consist of typed and edited PWGSC amended NMS sections, PWGSC in-house master specs sections and NMS sections.

4.4 DELIVERABLES

Deliverables are similar at all stages; completeness of the project development should reflect the stage of a submission (50%, 75%, 99% and Final Tender Submissions).

4.4.1 Progress Submissions

1. Construction drawings work packages, at 50%, 75% and 99% completion;
2. Full set of specifications with all divisions edited per work packages, at 50%, 75% and 99% completion;
3. Standard Operating Procedures (SOP) manual, at 50%, 75% and 99% completion;
4. Progress set of schedules including list of Materials for Finishes, Colours and Hardware;
5. One copy of support data, studies, calculations, required by PWGSC Engineering disciplines for review;
6. One copy of updated Cost Plan and Project Schedule;
7. An updated Class 'B' Estimate at 75% and Class 'A' estimate at 99% for each work package.

4.4.2 Final Submission (Tender Documents)

1. This submission incorporates all revisions required by the review of the 99% work packages submissions. Provide the following:
 - a. Complete set of originals drawings;
 - b. Complete sets of original specifications;
 - c. Updated Class 'A' Estimate;
 - d. Final Commissioning Brief;
 - e. Complete Standard Operating Procedures (SOP) manual;
 - f. One set of designated substance survey report.
2. As a safeguard against loss or damage to the originals, retain a complete set of drawings in reproducible form and one copy of specification;
3. Inspection Authorities Submission;
4. Submit and obtain approval on plans and specifications required by Inspection Authorities before tender call.

RS 5 TENDER CALL, BID EVALUATION & CONSTRUCTION CONTRACT AWARD

5.1 INTENT

To assist the Construction Manager (CM) in obtaining and evaluating bids from qualified contractors to construct the project as per the Tender Documents, and/or Tender Work Packages, and to award the construction contract according to government regulations.

5.2 SCOPE AND ACTIVITIES

The Consultant shall:

1. Attend tenderers briefing meeting(s), organised by the CM;
2. Prepare addenda based on questions arising in such meetings for issue by the Departmental Representative;
3. Provide the Departmental Representative with all information required by tenderers to fully interpret the Tender Documents.
4. Keep full notes of all inquiries during the bidding period and submit same to Departmental Representative at the end, for PWGSC records;
5. Assist in tender evaluation by providing advice on the following:
 - a. The completeness of tender documents in all respects;
 - b. The technical aspects of the tenders;
 - c. The effect of alternatives and qualifications which may have been included in the tender;
 - d. The tenderers capability to undertake the full scope of work;
 - e. The availability of adequate equipment to carry out the work.
6. If PWGSC decides to re-tender the project, provide advice and assistance to the Project Manager
7. Revise and amend, at the Consultant's cost, the tender documents to bring the cost of the work within the limits stipulated;
8. Examine and report on any cost and schedule impact created by the issue of tender / contract addenda.
9. Provide copies of all documents in the type and number specified in Section 1.13, General Project Deliverables.

5.3 TENDER CALL

1. The Consultant shall, after acceptance of the final submission of the construction documents by the Departmental Representative, provide one (1) complete set of the approved working drawings stamped by a Professional Engineer digitally, suitable for reproduction, and two (2) sets of the approved specifications, one set to be suitable for reproduction and the other set to be properly bound and covered.

2. The Consultant shall, on request:

- a. provide the Departmental Representative with information required for interpretation and clarification of the construction documents;
- b. assist in the evaluation and approval of equivalent alternative materials, methods and systems;
- c. assist with the preparation of addenda;
- d. attend job or site showings as required.

5.4 BID EVALUATION AND CONSTRUCTION CONTRACT AWARD

1. The Departmental Representative shall be responsible for assembling and issuing tender documents and arranging for the receipt of tenders and awarding of the Construction Contract.
2. The Consultant shall, on request:
 - a. Review and evaluate the bids received for the construction of the Project, and advise on their relative merits;
 - b. Provide information to support price negotiations.

5.5 DELIVERABLES

The Consultant shall provide the following:

1. Originals of drawings and specifications;
2. Electronic copies of drawings and specifications;
3. Addenda where needed;
4. Changes to the documents, if re-tendering is necessary;
5. Updated cost estimate or schedule.

RS 6 CONSTRUCTION AND CONTRACT ADMINISTRATION

6.1 INTENT

To implement and to verify the project in compliance with the Contract Documents for each of the Work Packages. To direct and to monitor the performance of the work, all necessary or requested changes to the scope of work during construction.

6.2 SCOPE AND ACTIVITIES - GENERAL

The Consultant shall:

1. During the implementation of the project, act on PWGSC's behalf to the extent provided in this document;
2. Carry out the review of the work at intervals appropriate to verify and to determine if the work is in conformity with the Contract Documents;
3. Keep the Departmental Representative informed of the progress and quality of the work and report any defects or deficiencies in the work observed during the course of the site review;
4. Take photographs of the progress of the work and of the deficiencies and include into the site review reports;
5. Provide supplemental instructions to the CM with reasonable promptness or as agreed to by the Consultant and the CM;
6. Ensure compliance with Commissioning Plan and inform CxM of any discrepancies;
7. Determine the amounts owing to the CM based on the progress of the work and certify payments to the CM;
8. Act as interpreter of the requirements of the Contract Documents;
9. Provide cost advice during construction;
10. Advise the Departmental Representative of all potential changes to scope for the duration of the implementation;
11. Review the CM's submittals;
12. Prepare and justify change orders for issue by the Department Representative;
13. Indicate any changes or material/equipment substitutions on Record Documents;
14. During the twelve (12) month warranty period investigate all defects and alleged defects and issue to the instructions CM;
15. Prepare and post Systems Operating Instructions;
16. Finalise Standard Operating Procedures (SOP) Manual;
17. Conduct a final warranty review.

6.3 SCOPE AND ACTIVITIES - DETAILS

6.3.1 Construction Meetings

1. Immediately after contract award arrange a briefing meeting with the CM and the Departmental Representative. Prepare minutes of the meeting and distribute copies to all participants and to other persons agreed upon with the Departmental Representative.
2. Call site meetings as frequently as required, commencing with the construction briefing meeting. The meetings should include the job site superintendent, Inspector of Construction main sub-subcontractors, affected sub-consultants and authorities having jurisdiction representatives as necessary. Prepare minutes of the meeting and distribute copies to all participants. The Departmental Representative may invite Client Department to attend any of these meetings.
3. Advise the Departmental Representative of the dates and times of the proposed meetings.
4. Attend all such meetings and maintain a record of the proceedings of such meetings and provide the Departmental Representative with a copy thereof.
5. Attend separate commissioning meetings on an as-required basis, organized by the CxM.

6.3.2 Project and Construction Schedule

1. As soon as possible after the award of the Construction Contract, request from the CM a detailed construction schedule, and, after review for conformity with the Project Schedule, forward two (2) copies of the construction schedule to the Departmental Representative.
2. Obtain Construction Schedule with detailed commissioning component shown separately, as soon as possible after contract award and ensure proper distribution.
3. Monitor the approved construction schedule, take necessary steps to ensure that the schedule is maintained and submit a detailed report to the Departmental Representative concerning any delays.
4. Report to the Departmental Representative the progress of the construction.
5. Notify the Departmental Representative of any known and anticipated delays which may affect the completion date of the Project, and keep accurate records of causes of delays.
6. Make every effort to assist the CM to avoid delays.

6.3.3 Time Extensions

1. Only the Departmental Representative may approve any request for Time Extensions from the CM. Approval will be issued in writing by the Departmental Representative.

6.3.4 Cost Breakdown

1. Obtain from the CM detail cost breakdown on standard PWGSC form and submit to the Departmental Representative with the first Progress Claim.

6.3.5 Sub-contractor Changes

1. The CM is required to use the sub-contractors listed on the tender form unless a change is authorized by the Departmental Representative. Changes are only considered when they involve no increase in cost.
2. Review all requests for changes of sub-contractors and submit recommendations to the Departmental Representative.
3. When sub-contractors have not been listed on the Tender Form, obtain the list from CM not later than 10 working days after date of award.

6.3.6 Labour Requirements

1. The CM is bound by the Contract to maintain competent and suitable workmen on the project and to comply with the Canada Department of Labour - Labour Conditions. Inform the Department of any labour situations that appear to require corrective action by the Department.
2. The Consultant shall ensure that a copy of the Labour Conditions for the Contract is posted in a conspicuous place on site.

6.3.7 By-law Compliance

1. Ensure that construction complies with applicable by-laws and regulations.
2. Matters pertaining to the Department of Labour shall be referred to the Departmental Representative.

6.3.8 Construction Safety

1. All construction projects that are occupied by federal employees during construction are subject to the Canada Occupational Safety and Health Act and Regulations as administered by Health and Welfare Canada.
2. Fire safety provisions during construction must comply with FCC Standards 301 and 302.
3. In addition to the above, the CM must comply with the provincial and municipal safety laws and regulations, and with any instructions issued by the officers of these authorities having jurisdiction relating to construction safety.
4. Ensure the CM is mandated to provide all required coordination, isolation, protection and reinstatement of the fire protection and suppression systems throughout construction. Notify the Property Manager each time the fire protection and suppression systems are bypassed and advise of estimated reinstatement time.

5. Ensure the CM is mandate to provide Watchman Service as defined in FC 301 or as directed by the Departmental Representative.

6.3.9 Site Visits

1. Provide basic construction site review services to ensure compliance with contract documents.
2. Provide services of qualified personnel who are fully knowledgeable with technical and administrative requirements of project.
3. Establish a written understanding with the CM as to what stages or aspect of the work are to be inspected prior to being covered up.
4. Assess quality of work and identify in writing to the CM and to the Departmental Representative all defects and deficiencies observed at time of such inspections.
5. Inspect materials and prefabricated assemblies and components at their source or assembly plant, as necessary for the progress of the project.
6. Any directions, clarifications or deficiency list shall be issued in writing to the Departmental Representative.
7. Record and report to the Departmental Representative on the progress, non-conformities and deficiencies observed during each site visit, and provide the CM with written progress reports and list of deficiencies observed; take digital photographs of the progress of work and work to be rectified; include photographs into the reports; and recommend the action to be taken.
8. Consultant shall arrange for the Consultant's architectural, structural, mechanical, electrical and other consultants to make the periodic inspections required by the Consultant's contract, and for these inspections to be made timely with respect to the progress of the work.

6.3.10 Clarifications and Interpretation

1. Provide clarifications and interpretation of the construction documents and/or site conditions in written or graphic form as required in order that project not be delayed to the CM for proper execution and progress of the construction as and when necessary.

6.3.11 Progress Reports

1. Report to the Departmental Representative regularly on the progress of the work. Submit bi- weekly reports including photos of progress of the work.

6.3.12 Work Measurement

1. If work is based on unit prices, measure and record the quantities for verification of monthly progress claims, Substantial Performance Certificate, and the Completion Certificate of Measurement.
2. When Contemplated Change Notice is to be issued based on Unit Prices, keep accurate account of the work. Record dimensions and quantities.

6.3.13 Detail Drawings

1. Provide for the Departmental Representative's information any additional detail drawings as and when required to properly clarify or interpret the contract documents.

6.3.14 Shop Drawings

1. Establish and implement a shop drawing handling/distribution protocol acceptable to the Project Team. Verify the number of copies of shop drawings required. Consider additional copies for Client's departmental review.
2. Specify in the construction documents the shop drawings that are to be submitted by the Contractor;
3. Review and take other appropriate action with reasonable promptness upon such submittals as shop drawings, product data, and samples, for conformance with the general design concept of the work as provided in the Contract Documents.
4. Review in a timely manner the shop drawings provided by the CM to determine conformity with the general design concept and intent of the construction documents and indicate to the CM such conformance with the general concept or lack thereof; and provide the Departmental Representative with one (1) copy when such conformity is confirmed.
5. Verify that shop drawings include the project number and are recorded in sequence.
6. Shop drawings shall be stamped: "Checked and Certified Correct for Construction" by the CM and stamped: "reviewed with comments", "reviewed" or "rejected" by the Consultant before return to the CM.
7. Expedite the processing of Shop Drawings within the five (5) working days or the number of days agreed by the Departmental Representative.
8. On completion of project, forward four (4) copies of reviewed shop drawings to the Departmental Representative.

6.3.15 Inspection and Testing

1. Prior to tender, provide Departmental Representative with recommended list of tests to be undertaken, including on site and factory testing. Where applicable, provide terms of reference for inspection and testing services to Departmental Representative.
2. Specify in the construction documents product and performance testing to be undertaken by the CM.
3. Recommend quality assurance testing to be undertaken during construction, evaluate the results and advise the Departmental Representative accordingly.
4. Request the CM to take remedial action when observed material or construction fails to comply with the requirements of the Construction Contract, and advise the Departmental Representative accordingly.
5. Coordinate all testing with the CxM and ensure all testing is detailed within the commissioning plan.

6. When contract is awarded, assist Departmental Representative in briefing testing firm on required services, distribution of reports, communication lines, etc.
7. Review all test reports and take necessary action with the CM when work fails to comply with contract.
8. Immediately notify Departmental Representative when tests fail to meet project requirements and when corrective work will affect schedule.
9. Assist Departmental Representative in evaluating testing firm's invoices for services performed.
10. Recommend to Departmental Representative about monitoring of abatement of designate substances as required.

6.3.16 Training

1. Prior to tender, review the Training Plan and coordinate the requirements with the CxM.

6.3.17 Changes to Construction Contract

1. The Consultant does not have authority to change the work or the price of the Contract.
2. Submit all requests and recommendations for changes to the Construction Contract and their implications to the Departmental Representative for approval.
3. Changes which affect cost or design concept must be approved by the Departmental Representative.
4. Upon Departmental Representative's approval obtain quotations from the CM in detail for contemplated changes, review the prices for acceptability, assess the effect on construction progress, and submit promptly recommendations to the Departmental Representative.
5. The Departmental Representative will issue Consultant-prepared Change Orders to the CM, with a copy to Consultant.
6. All changes, including those not affecting the cost of the project, will be covered by Change Orders.
7. The practice of "trade offs" is not allowed.

6.3.18 Construction Manager's Progress Claims

1. Request from the CM a cost breakdown of the Construction Contract Award Price in detail appropriate to the size and complexity of the project, or as may otherwise be specified in the Construction Contract, and submit the cost breakdown to the Departmental Representative prior to the CM's first progress claim.
2. Review the progress claim for work and materials as per the requirements of the Construction Documents, submitted each month by the CM.
3. Examine progress claims in a timely manner and, if acceptable, certify the progress claims for work completed and materials delivered pursuant to the Construction Contract, and submit them to the Departmental Representative for approval and processing.

4. If the construction is based on unit prices, measure and record the quantities of labour, materials and equipment involved for the purpose of certifying progress claims.
5. Verify at each progress payment that the CM has accurately recorded information on the site as-built set of Contract Documents.
6. The claims are made by completing the following forms where applicable:
 - a. Request for Progress Payment;
 - b. Cost Breakdown for Unit and/or combined Price Contract;
 - c. Cost Breakdown for Fixed Price Contract;
 - d. Statutory Declaration Progress Claim;
 - e. Certificate of Workplace Safety and Insurance Board (WSIB).
7. Review and sign designated forms and promptly forward claims to the Departmental Representative for processing.
8. Submit with each progress claim:
 - a. Updated schedule of the progress of the work;
 - b. Detailed photographs of the progress of the work.

6.3.19 Materials On Site

1. The CM may claim for payment of material on site but not incorporated in work.
2. Material must be stored in a secure place designated by the Departmental Representative.
3. Detailed list of materials with supplier's invoice showing price of each item must accompany claim. The Consultant shall check and verify the list.
4. Items shall be listed separately on the Detail Sheet after the break-down list and total.
5. As material is incorporated in the work the cost must be added to the appropriate Detail item and removed from the material list.

6.3.20 Acceptance Board

1. Inform the Departmental Representative when satisfied that the project is substantially completed. The Consultant shall ensure that his representative, his sub-consultant representative, CxM, CM, and major sub-trades representatives shall form part of the Project Acceptance Board and attend all meetings as organized by the Departmental Representative.

6.3.21 Substantial Performance (Interim) Inspection

1. The Acceptance Board shall inspect the work and list all unacceptable and incomplete work on a designated form. The Board shall accept the project from the CM subject to the deficiencies and uncompleted work listed and priced.

6.3.22 Certificate of Substantial Performance (Interim)

1. Review the construction with the Departmental Representative and the CM, and record all unacceptable and incomplete work detected.
2. Request from the CM, review for completeness and adequacy and provide the Departmental Representative with all operation and maintenance manuals and any other documents or items to be provided by the CM, in accordance with the Construction Contract.
3. Prepare and submit to the Departmental Representative for approval and processing, and as a basis for payment to the CM, a Certificate of Substantial Performance (Interim) as required by the Construction Contract, together with supporting documents properly signed and certified.
4. Payment requires completion and signing, by the parties concerned, of the following documents:
 - a. Certificate of Substantial Performance;
 - b. Cost Breakdown for Fixed Price Contract;
 - c. Cost Breakdown for Unit or Combined Price Contract;
 - d. Inspection and Acceptance;
 - e. Statutory Declaration Certificate of Substantial Performance;
 - f. WSIB Certificate;
 - g. Progress Photos;
 - h. Updated Schedule.
5. Verify that all items are correctly stated and ensure that completed documents and any supporting documents are furnished to the Departmental Representative for processing.

6.3.23 Building Occupation

1. The Client Department may occupy the building after the date of acceptance of the building by the Acceptance Board. The acceptance date is normally that of the Interim Certificate issued to the CM. As of the acceptance date, the CM may cancel the Contract Insurance, and the Client Department (as the case may be) assumes responsibility for:
 - a. Security of the work(s);
 - b. Fuel and utility charges;
 - c. Proper operation and use of equipment installed in the project;
 - d. General maintenance and cleaning of the work(s);
 - e. Maintenance of the site (except any landscaping maintenance covered by the contract).

6.3.24 Operation and Maintenance (O&M) Manual

1. O&M Manual: four (4) hard copy sets and two (2) electronic copies of each volume produced by the CM in accordance with Sections 01 33 01, 01 77 00, 01 78 00 of project specification and verified for completeness, relevance and format by the Architectural, Mechanical and Electrical Consultants and submitted to the Departmental

Representative prior to interim acceptance or actual start of operation and instruction period, whichever occurs sooner. The CM shall retain one copy of each volume for his record and use during the instruction period.

6.3.25 Instruction of Operating Personnel

1. Make arrangements and coordinate with CxM to ensure that the Client's operating personnel is properly instructed on the operation of all services and systems using the final manuals as reference.
2. The CM shall provide training sessions, as required, on the subject of design intent and systems operations. Utilize Systems operations manual for training sessions.

6.3.26 Keys

1. Ensure that all keys and safe combinations are delivered to the Departmental Representative or the Client Department as applicable.

6.3.27 Final Inspection

1. Inform the Departmental Representative when satisfied that all work under the contract has been completed, including the deficiency items, Inspection and Acceptance as a result of the Interim Inspection. The Departmental Representative reconvenes the Acceptance Board which makes a final inspection of the project. If everything is satisfactory the Board makes final acceptance of the project from the CM.

6.3.28 Certificate of Completion (Final)

1. Advise the Departmental Representative when the construction has been completed in general conformity with the Construction Contract.
2. Make a final review of the construction with the Departmental Representative and the CM and, if satisfactory, prepare and submit to the Departmental Representative for approval and final payment to the CM, a Certificate of Completion (Final) as required by the Construction Contract, together with supporting documents properly signed and certified, including manufacturers' and suppliers' warranties.
3. The final payment requires completion and signing, by the parties concerned, of the following documents:
 - a. Certificate of Completion;
 - b. Cost Breakdown for Fixed Price Contract;
 - c. Inspection and Acceptance;
 - d. Statutory Declaration Certificate of Completion;
 - e. Cost Breakdown for Unit and/or Combined Price Contract;
 - f. WSIB Certificate;
 - g. Certificate of Acceptance from Electrical Inspection Department;
 - h. Final photographs.

4. Verify that all items are correctly stated and ensure that completed documents and any supporting documents are furnished to the Department for processing.

6.3.29 Take-over

1. The official take-over of the project or parts of the project from the CM is established by the Project Team which includes the Consultant and the Client Department. The date of Interim Certificate of Completion and the Final Certificate of Completion signifies commencement of the 12 month warranty period for work completed on the date of each certificate in accordance with the General Conditions of the Contract.
2. Provide Department with original copy of CM's warranties for all materials and work covered by an extended warranty or guarantee, according to the conditions of the specifications. Verify their completeness and extent of coverage.

6.3.30 As-Built and Record Drawings and Specifications

1. Following the take-over and before issuance of the Certificate of Completion (Final), obtain as-built marked-up hard copy from the CM:
 - a. Show significant deviations in construction from the original Contract drawings, including changes shown on Post-Contract Drawings, changes resulting from Change Orders and/or from On Site Instructions.
 - b. Check and verify all as-built information provided by the CM for completeness and accuracy and submit to Departmental Representative.
2. Produce Record Drawings by incorporating changes shown on Post-Contract Drawings, changes resulting from Change Orders and/or from On Site Instructions and As-Built information, into project drawings and specifications.
3. Verify that record drawings are suitable for digital printing or scanning, incorporating all recorded changes to the original working drawings based on as-built prints, drawings and other information provided by the CM, together with change orders and on site instructions.
4. Verify that record drawings are labeled "Record", dated and signed by the Consultant, and provide also a marked-up copy of the specifications recording changes related thereto.
5. Submit a complete set of Record Drawings and Specifications in number and format required by the Consultant Agreement within 8 weeks of final acceptance.
6. Provide a complete set of final shop drawings.

6.4 DELIVERABLES

The Consultant shall provide the following:

1. Written reports from site visits including persons involved;
2. Written reports on the progress of work and cost of the project at the end of each month;
3. Additional detail drawings when required to clarify, interpret or supplement the Construction Documents;
4. Post contract drawings;
5. CCN's, SI's, CO's, etc for signature by the Departmental Representative;
6. Certificates of Substantial Performance and/or Completion;
7. Debrief of Commissioning Activities;
8. As built drawings (hard copy provided by CM);
9. Record drawings and specifications;
10. Progress photographs during construction and final photographs (digital format);
11. Progress Draws Reviews;
12. Warranty deficiency list;
13. Report on Final Warranty Review.

RS 7 COMMISSIONING

7.1 INTENT

The Commissioning Team members and their roles for this project shall be as follows:

1. Commissioning Manager (CxM): prepare the Commissioning Plan and oversee all commissioning activities for this project.
2. Consultant: Manage the CxM and provide all design information required for commissioning to meet EC's functional requirements and maintain design intent of the base building systems, prepare the Design Intent Brief and Commissioning Brief and submit to the CxM for coordination of the Commissioning Plan.
3. PWGSC Departmental Representative: manage the Consultant contract deliverables.
4. EC Departmental Representative: provide all base building operational requirements, review impact of any changes proposed to the existing system and provide feedback.

The Consultant shall provide the commissioning services to verify that the base building and EC's functional requirements are correctly interpreted during the design stage and contract documents, and the building systems operate consistently at the peak efficiencies, under all normal load conditions. The Consultant will manage the CxM and incorporate the commissioning requirements and standards into the design and construction contract documents.

As a member of the Consultant team, the CxM (hired by the Consultant) represents PWGSC and EC's interests, and is responsible for overseeing all commissioning activities during the development, implementation and post construction stages of the project to conform to PWGSC's Commissioning Manual, latest edition.

EC Departmental Representative generally consists of the Property Manager and O&M Staff, represents EC's base building interests, and is responsible for reviewing and providing inputs on all commissioning activities throughout the project, and to participate in O&M training.

The Consultant, on behalf of PWGSC and the client department, will engage the CxM to represent EC's interests and oversee all commissioning activities during the development, implementation and post construction stages of the project to conform to EC's operational laboratory standards. The CxM will be coordinating with the Departmental Representative for the commissioning activities and standards of the base building.

Throughout this stage, the Consultant's representative on site will work with the CxM, the Departmental Representative and the CM to implement commissioning activities and create useful, well integrated drawings, commissioning reports and manuals, in compliance with Contract Documents.

7.2 SCOPE AND ACTIVITIES

The Consultant shall provide the services including, but not limited to, the following activities:

1. Define the operational and performance requirements of the base building with the CxM.
2. Ensure that responsibility for meeting these requirements and demonstrating compliance is defined in the design and contract documents.
3. Ensure that appropriate start-up and checkout procedures are employed for components, subsystems, including meaningful documentation for and certification of, quality control reports and techniques under the normal or enhanced basic services and contractual procedures.
4. Ensure that the final product meets the specified requirements and the criteria set out in the project brief.
5. Document the operations, maintenance and management requirements, and transferring the completed works to qualified facility operators.
6. Minimize the life-cycle operating and maintenance costs.
7. Verify that the department's functional requirements are correctly implemented and that the building systems operate consistently at peak efficiencies, under all normal load conditions of the design intent.
8. Provide complete documentation on the operations and maintenance requirements
9. Prepare Systems Operating Procedures (SOP) Manual. Contents of SOP Manual and Operation and Maintenance (O&M) manual shall be in accordance with PWGSC Commissioning Manual (CP.1) latest edition.
10. Review Product Information (PI) Forms and Performance Verification (PV) Forms and submit comments to PWGSC and CxM.
11. Attend commissioning testing to ensure that proper protocols are being maintained.
12. Identify CM and Sub-contractor commissioning, performance verification (PV) and testing responsibilities.
13. Witness the PV tests performed by the CM. Maintain detailed development reports and review with the CM for special systems such as Energy Monitoring and Control System (EMCS).
14. Review completed PV inspection forms for all components, subsystems, systems, integrated systems and final performance verification report submitted by the CxM.
15. Ensure that the documentation and testing reports from the CxM are submitted to the Departmental Representative in a proper, timely and organized fashion.
16. Ensure that the CM submits a training schedule for the O&M staff to be trained on the operations of the new facilities based on the training plan prepared by the CxM. The training plan will recognized both short term and long term requirements and shall employ both hard copy and visual techniques.
17. Review final commissioning report prepared by CxM at end of all commissioning activities.

During the Construction phase, the Consultant shall:

1. Monitor and report on contract commissioning activities.
2. Review and certify Testing Adjusting and Balancing (TAB) Reports and other verification reports as they are completed by the CM's testing agencies
3. Review commissioning schedule and coordinate with the phasing of the project and attend commissioning meetings.
4. Witness all components, systems and integrated systems tests.
5. Review and comment on commissioning test results.
6. Provide advice and recommendations for fine tuning.
7. Finalize the Design Intent Report and PWGSC / EC O&M Manual to reflect as-commissioned operation and maintenance of each system.

The project will be accepted and the Certificate of Substantial Completion will be issued only after the CM meets the requirements of the contract and the following:

1. Successful completion of integrated systems tests, life safety support systems tests and after meeting all requirements of the authority having jurisdiction.
2. All test certificates, commissioning reports and commissioning documentation have been approved by the Departmental Representative.

7.3 DELIVERABLES

The Consultant shall provide the following:

1. Design Intent Brief;
2. Commissioning Brief;
3. Commissioning Specifications in Div 01;
4. Standard Operating Procedures (SOP) Manual;
5. Review and approve O&M Manual, including, but not limited to, warranty letters, HVAC balancing reports, commissioning reports, as-built drawings, product literature, shop drawings.

The Consultant shall review the following documents prepared by the CxM and coordinate the requirements within the project:

1. Commissioning Plan;
2. Product Information Forms (PI) and Performance Verification (PV) Forms to be executed by the CM;
3. Commissioning Schedule;
4. Training Plan and training materials;
5. Post acceptance commissioning;
6. Final Commissioning Report.

RS 8 POST-CONSTRUCTION WARRANTY REVIEW

The Consultant shall:

1. Review if requested, during the Contractor's warranty period, any defects reported by the Departmental Representative;
2. 30 days prior to the expiry of any warranty period, visit the site, and record any defects observed or reported; at the end of any warranty period, carry out a final review of the Project and report to the Departmental Representative the status of defects.
3. If the Departmental Representative accepts the rectification of the defects, a notice of "Final Warranty Inspection" shall be issued to the Contractor.

ADDITIONAL SERVICES

AS 1 PROJECT TIME PLANNING, SCHEDULING AND CONTROL

1.1 PLANNING/SCHEDULING REQUIREMENTS & APPLICATION

Planning and Scheduling are high priorities with all Federal Government projects. The concept of planning and scheduling is to facilitate the accomplishment of objectives and should be thought of as a continuous interactive process involving planning, action, measurement, evaluations and revision.

The intent of these services for this project is to develop and coordinate with the Laboratory Move Coordination Advisor the phasing for decommissioning, relocating, reinstallation and commissioning of the equipment to maintain EC laboratory operation during the construction.

1.2 SYSTEM FOR PROJECT CONTROL

The Planning and Scheduling Specialist shall provide a project control system based on network techniques such as Critical Path Method (CPM) for Planning, Scheduling, Progress Monitoring, and Reporting of project progress. We would recommend the Project Control System be fully computerized using one of the many commercially available software packages.

1.3 PERSONNEL

It is required that fully qualified, experienced Planning and Scheduling personnel play a major role in the development and monitoring of the project schedule. The Planning & Scheduling specialist shall provide Consultant scheduling services from commencement of the project design stage through to construction contract award. The Consultant shall provide Time Planning / Scheduling services in accordance with the following general scope and detail specific services.

1.4 SCOPE OF PROPOSAL

The general scope of work for the Design, Construction Documents, and Award Phases of Planning and Scheduling services include the following activities:

1. Develop a Work Breakdown Structure;
2. Assist in developing the Project Objectives;
3. Develop a Project Master Network;
4. Develop, monitor & maintain Detail Schedules, Bar Charts, and Milestone Listings;
5. Identify Project Activities;
6. Attend project meetings;

7. Identify Major Elements/Phases of Work;
8. Identify design team coordination requirements including, but not limited to, decommissioning, relocation, reinstallation, commissioning of work;
9. Prepare Pre-construction schedule with input from the CM;
10. Prepare monthly, or as required Progress Reports;
11. Review and coordinate with the CxM the Pre-commissioning Schedule prepared by the CxM.

1.5 PLANNING

1.5.1 PROJECT WORK BREAKDOWN STRUCTURE

Within five (5) working days after finalizing the agreement, prepare a Project Work Breakdown Structure (PWBS). A PWBS is a project oriented family tree subdivision of services and other work tasks which organizes, defines and graphically displays a project. This PWBS should be developed through at least five levels: project, stage, element, sub-element and work package.

1.5.2 PROJECT SCHEDULE AND CASH FLOW PROJECTION

Within ten (10) working days after finalizing the agreement, prepare a Project Schedule that accounts for all major project activities and costs. This will involve confirming the validity or alternates to the identified milestones in the Proposed Major Milestone Schedule. Significant phases of project development include Analysis of Project Requirements, Concept Design, Design Development, Construction Documents, Tender, Contract Award, Construction, and Commissioning.

Within ten (10) working days after finalizing the agreement, prepare a Cash Flow Projection of the Consultant's fees and disbursements in accordance to the schedule.

Unless specified otherwise in this Section, quantified days duration refers to working days, which is based on a 5 day work week and discounts all statutory holidays.

The original Project Schedule will be "frozen" to provide an original Target or Baseline Schedule. This Target Plan may be revised on instruction from the Departmental Representative as conditions dictate. All revised Target Plans and Cash Flow Projections will be reconciled with previous targets to provide a continuous audit trail.

The Consultant will provide the initial and subsequent Project Schedule in the following form:

1. CD containing all schedule and cash flow information;
2. Bar chart identifying activity durations, early/late dates, total float, percent complete and budget amounts;

3. Network diagram showing all activity sequencing;
4. Annual and monthly actual/projected monthly cash flow in both graphical and numerical form.

After five (5) working days of review the Planning and Scheduling, the Consultant shall meet with the Project Team to finalize a mutually acceptable Project Schedule and Cash Flow Projection.

1.6 SCHEDULING

1.6.1 DETAIL SCHEDULES - DESIGN, CONSTRUCTION DOCUMENTS, TENDER & AWARD

Preparation of the Detail Schedule

The Consultant shall within twenty (20) working days from finalizing the agreement provide a Detail Project Schedule. Activities must be shown for all phases of Concept & Design Development. All necessary review and approvals must be included. Activities must also be shown for Construction Documents leading through the key milestones of 50%, 75%, 99% and work package approvals. This will be followed by the coordination and review activities leading to Tender Documents work packages, and then by the Tender Process leading to Award for each.

Prior to the completion of the Tender Documents, the initial Construction and Commissioning activities shown on the approved Project Schedule will be further broken down in order to confirm the validity of our approaches to construction and commissioning. The level of detail for project activities will be such that the sequence and interdependency of all contract tasks will be demonstrated and will make possible the coordination and control of all project activities.

In order to provide a reasonable basis for progress monitoring and control, the schedule shall be in sufficient detail to ensure adequate planning and control. It is also recommended that activity durations should not exceed five days. The Detail Activities must relate at all times to the Milestones developed and approved in the Project Schedule.

The activities with no float (start and finish on their early calculated dates) which form the "Critical Path" must be calculated and clearly indicated on the logical network as being wherever possible a continuous series of activities through the project. No more than 25 percent of the activities shall be critical, or near critical. Near critical is defined as float in the range of 1 to 5 working days.

Review and Approval of the Detail Schedule

The Consultant shall allow one week (calendar) period for the review by the Departmental Representative of the proposed Detail Schedule.

Following the review, any necessary revision to the schedule must be submitted to the Departmental Representative within one week (calendar) after his or her request.

The Consultant shall, at the Departmental Representative's request and without additional charges, provide all additional information required by the Departmental Representative to validate the practicality of the Consultant's work schedule.

Compliance with the Detail Schedule

The Consultant must comply with the approved Detail Schedule, direct and assist the sub-consultants in the planning and coordinating of their work with respect to this schedule.

1.6.2 PROGRESS MONITORING AND REPORTING

On a Monthly basis with status dated on the last working day of the month, the Consultant working with all responsible parties shall perform a Detail Schedule update. The Detail Schedule shall reflect the following:

1. Progress of each activity to the date of the report;
2. Any logic changes, both historic and planned;
3. Projections of progress and completion;
4. The actual start and finish dates of all activities being monitored in the network shall be recorded and submitted;
5. Any potential delays, outstanding issues and concerns from the design teams point of view, and options for dealing with any serious planning and scheduling issues.

Within five (5) days of the date of the Schedule Update, the Consultant will provide the initial and subsequent Detail Schedules in the following form:

1. CD containing all detail schedule and cash flow information;
2. Detail Schedule Bar Chart identifying status to date;
3. Detail Network Diagram identifying status to date;
4. A listing of all project activities including milestones and dummies (if applicable), in all networks (and sub-networks) from basic project start to project end. Sort activities by activity identification number with accompanying descriptions. List early and late start and finish dates together with durations, codes and float.
5. A Criticality Report listing all activities and milestones with negative, zero and up to five days Total Float used as a first sort for ready identification of the critical, or near critical paths through the entire project. List early and late start and finish dates, together with durations, codes and float for the critical activities printed.

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6. A Progress Report in early start sequence, listing for each trade, all activities due to start, to be underway, or finish within two months from the monthly update date. List the activity identification number, description, and duration. Provide columns for entry of the actual start and finish dates, duration remaining, and remarks concerning action to be taken.

The Consultant shall also submit a written monthly Narrative Report based on the Detail Schedule, detailing the work performed to date, comparing work progress to planned, and presenting current forecasts. This report should summarize the progress to date, explaining current and possible deviations and delays with respect to the Detail Schedule, and Critical Paths.

1.6.3 TENDER & CONSTRUCTION SCHEDULE REQUIREMENTS

Construction and Commissioning Periods

As design progresses and the scope of construction work becomes more clearly defined, the Consultant shall develop more detailed schedules and cash flows to illustrate the sequencing of work as it relates to activities and/or constraints in other contracts. This must be done in order to:

1. Confirm or raise question of previously established construction durations and phasing;
2. Develop more accurate cash flow projections for construction;
3. Identify any interfaces and/or sources of potential conflicts;
4. Review the CM proposed work schedule.

Before each work package of the project is tendered (at the 99% drawing stage), the Consultant shall develop and present the specification section (01 32 15 and 01 32 16) of the Contract Documents dealing with Construction Planning and Scheduling for review and discussion with the Departmental Representative in order to develop a comprehensive section that is consistent with other relevant areas of Contract Administration.

1.7 Deliverables

The Consultant shall provide the following:

1. Project Schedule (including CPM and PWBS);
2. Cash Flow Projection for Consultant Fees and Disbursements.

AS 2 ESTIMATING AND COST PLANNING

2.1 Cost Estimating Specialist

Delivering this project on time and within budget is a high priority. A fully qualified cost estimating, cost planning and cost control team, referred to herein as the Cost Estimating Specialist, with a demonstrated record of successful cost management on similar construction projects is required. This Cost Estimating Specialist will be conversant with all aspects of construction cost estimating during the design stages including the use of Elemental Cost Analysis, Risk Analysis, Life Cycle Costing and Value Engineering/Management techniques.

The purpose of cost planning and cost control is to assist in the accomplishment of project cost objectives. It is a continuous and interactive process involving planning, action, measurement, evaluation and revision.

2.2 Scope of Services

The Cost Estimating Specialist shall provide an interactive and continuous cost consulting service from the commencement of project design through to construction completion, including the preparation of complete estimates for all construction trades, escalation, inflation and contingency costs.

The Cost Estimating Specialist shall provide to the Departmental Representative and the Consultant, a cost advising, and cost monitoring/reporting service.

The Cost Estimating Specialist shall attend all project meetings throughout the design phases and be prepared to present and defend the estimates directly to the Departmental Representative.

The project will be delivered through the Construction Management process. The estimates should be based on a lump sum fixed price cost for all submissions. Should the Departmental Representative decide to deliver the project by project management, phased construction or other means, the Cost Estimating Specialist will negotiate any fee adjustment with the Consultant that is acceptable to the Departmental Representative, prior to commencing adjustment of estimates and reporting systems.

Other services may be provided at additional cost, if requested.

2.3 Services - Basic Activities

The Cost Estimating Specialist shall work with and advise the Consultant team and Departmental Representative of the costs of individual building components and costs of

various design systems. Estimates should be prepared in detail and summarized using an Elemental Analysis format. Acceptable formats are noted under the Submission Standards section following.

The Cost Estimating Specialist shall provide continuous cost monitoring, timely identification and early warning of all changes that affect or potentially affect the estimated construction costs of the project.

If the estimate falls short of or exceeds the Construction Cost Plan due to such changes, the Cost Estimating Specialist with the Consultant team shall fully advise the Departmental Representative and submit an Exception Report. The Consultant team with the Cost Estimating Specialist shall submit to the Departmental Representative proposed alternative design solutions and revise the most recent estimate without additional charges.

An Exception Report will include sufficient description and cost detail to clearly identify:

1. Scope Change: Identifying the nature, reason and total cost impact of all identified and potential project scope changes affecting Construction Cost Estimate.
2. Cost Overruns and Underruns: Identifying the nature, the reason and the total cost impact of all identified and potential cost variations.
3. Options Enabling a Return to Construction Cost Estimate: Identifying the nature and potential cost effects of all identified options proposed to return the project within Construction Cost Estimate.

Refer to Appendix D - Doing Business with PWGSC for additional information.

2.3.1 Reporting

At each of the Milestones specified in this document, provide a complete submission including the required Elemental Summaries, supported by all backup work sheets clearly detailing the process used in preparing the estimate. The detailed work sheets will be the prime basis on which estimates will be reviewed by the Departmental Representative. Cost comparisons and cost reports identifying and explaining the differences between each succeeding cost estimate and their cost effect are also required.

In addition, the Cost Estimating Specialist shall fully coordinate all estimates with schedules.

A typical Milestone Report shall contain:

4. Project Estimate Summary;
5. Elemental Estimate Summary;
6. Estimate Back-Up Detail:
 - a. Basis for escalation, inflation and contingency calculations;

b. Detailed measurement and pricing.

7. Narrative:

- a. Outline description of estimate basis;
- b. Description of information obtained and used in the estimate including the date received;
- c. Listing of notable inclusions;
- d. Listing of notable exclusions;
- e. Listing of items/issues carrying significant risk;
- f. Notes on past and forecast Cost Specialist activity.

8. Estimate Reconciliation:

- a. With last submission;
- b. With Construction Cost Plan.

Refer to Appendix D - Doing Business with PWGSC for additional information.

2.3.2 Submission Standards

Summary Format

1. Elemental Analysis: All estimates shall be summarized in an agreed and consistent Elemental format. Several variations in format may be acceptable to PWGSC (by discussion) but those following the ASTM (USA), CIQS (CDN), CSI Unifomat II (USA) or BCIS (UK) formats are preferred.
2. Trade Summary: Where a trade summary is required, those following the Masterformat are preferred, except where local practice provides a more suitable alternative.
3. Project Cost Subdivision: The estimate shall isolate the costs of each Work Package and phase of construction. All estimates shall further isolate and show separately the cost of individual building blocks and/or the accommodation sections listed here:
4. Renovation.

Media

1. Provide three (3) hard copies of all reports including estimate summaries only and one (1) additional hard copy of the full report including the additional estimate support information to the Departmental Representative.
2. One digital copy of the total estimate, summary and support detail, shall be provided on CD in an agreed format.

Timelag

Recognizing that estimates must follow the design decisions they represent, such estimates may lag. The cost portion of the Milestone Reports may follow, but by no more than two weeks unless otherwise determined by the Departmental Representative.

Use of all available information

The Cost Estimating Specialist is responsible for providing a complete cost estimate even though the information provided during the concept, design development and early working drawing stages is incomplete. Where requirements are not firmly defined, the Cost Estimating Specialist shall make assumptions, confirm them with the Consultant and either list them as assumptions, or have them incorporated in an outline specification modified by the Consultant.

2.4 Services - Specific Activities**2.4.1 Analysis of Project Requirements Stage**

Review, report on, and propose revisions to the existing class "D" estimate. Do not proceed until the Cost Specialist, the Consultant and PWGSC have accepted the revised class "D" estimate.

The revised Class "D" estimate shall become the Construction Cost Plan.

2.4.2 Pre-Design Services Phase

During the Pre-Design Services phase preparing a Class C estimate for the options considered.

The Class C estimate shall become the Construction Cost Plan.

2.4.3 Design Development

Upon completion of design development, prepare a Class B estimate representing the increased level of design detail available. The report shall be prepared using detailed (elemental) costs i.e. measured quantities with minimal allowances or lump sums.

Upon final acceptance, the Class B estimate shall become the Construction Cost Plan.

2.4.4 Contract Documents

During the production of the contract documents, a process of continuing cost control progressively more detailed is required. At each review of contract documents, an up-to-date estimate shall demonstrate compliance with the Construction Cost Plan. At the 75% submission stage, an updated Class B estimate is required. At the 99% submission stage, a Class A estimate is required. Non-compliance with the Construction Cost Plan will require revisions to the contract documents.

2.4.5 Pre-Tender

Upon completion of the contract documents a pre-tender Class A cost estimate will be prepared using 100% measured quantities.

Provide a trade breakdown of the pre-tender estimate for use in reviewing the submitted bids and the CM's estimate breakdown.

2.4.6 Tender Stage

1. Tender Award

- a. During the tender period for each work package, examine and report on any cost impact created by the issue of tender/contract addenda. Incorporate the results of such addenda review into the final pre-tender estimate (both elemental and trade versions) prior to receipt of bids.

2. Bid Review and Analysis

- a. Assist the Departmental Representative and CM, as required, by analyzing and reconciling any differences between the pre-tender estimate and the submitted bids.

3. Negotiation

- a. Should it be necessary to negotiate with any bidder prior to awarding the Contract, the Cost Estimating Specialist shall provide cost information as needed and enter into the negotiations if requested.

4. Reconciliation

- a. The Cost Estimating Specialist, if necessary, will reconcile both the elemental and trade estimates with the CM, in detail, with the agreed contract sum. These reconciled estimates will be used by the Construction Team during the construction phase of the project.

2.4.7 Cost Specialist Services through Construction

During construction, the Cost Estimating Specialist shall assist the Construction Team with cost advice if requested.

If required, payment will be made on an agreed, negotiated basis. Such activity may well encompass the following activities:

1. Evaluation of change orders;
2. Evaluation of claims;
3. Evaluation of work completed;
4. Evaluation of cash flow.

2.5 Responsibilities to PWGSC

PWGSC will review all aspects of the Cost Estimating Specialist's work on a continuing basis to determine the validity and completeness of the information provided. In the event that PWGSC may identify areas of concern including errors and omissions as well as areas of inadequate

detail or areas that require further explanation, the Cost Estimating Specialist shall re-examine the estimates provided and make such revisions as are subsequently agreed to be necessary and/or provide ample acceptable evidence that such corrections or amendments are unnecessary.

- No Action Abrogates Consultant's Responsibilities
- No acceptance or approval by PWGSC, whether expressed or implied, shall be deemed to relieve the Cost Estimating Specialist, or the Consultant, of professional or technical responsibility for the estimates and cost reports.
- Neither does acceptance of an estimate by PWGSC in any way abrogate the Consultant's responsibility to maintain the agreed Construction Cost Plan throughout the life of the project, or the requirement to redesign should the lowest acceptable bid differ significantly from the agreed Construction Cost Plan, unless and until the Departmental Representative indicates otherwise in writing.

AS 3 RISK MANAGEMENT

3.1 INTENT

1. The Consultant is to provide support to the Departmental Representative in identifying risks throughout the project life cycle;
2. Refer to Appendix D "Doing Business with PWGSC" for Risk Management "Definitions" and "Checklist".

3.2 SCOPE AND ACTIVITIES

1. Identify risk events based on past experience and using proposed checklist or other available lists;
2. Qualify/quantify probability of risk event (Low, Medium, High) and their impact (Low, Medium, High) and associated estimated impact cost;
3. Prioritize risk events (i.e. concentrate efforts on risk events with High probability and Medium to High impact);
4. Develop risk response (i.e. evaluate alternatives for mitigation. This is the real added-value of risk management);
5. Implement risk mitigation.

3.3 DELIVERABLES

1. Prepare and submit a Risk Management Report at the 99% Construction Document stage;
2. Include input from all sub-consultants and Client Department;
3. Take steps to implement risk mitigation as required. This may include, but is not limited to, further recommendations, analysis, investigations, site meetings and site reviews.

AS 4 RESIDENT SERVICES DURING CONSTRUCTION

4.1 INTENT

The purpose of the additional site services is to ensure the presence of the Consultant's representative on site, beyond the basic construction site review services, at the request of the Departmental Representative, to inspect, to coordinate with other disciplines, and to monitor critical aspects of the work during the construction of the facility, as well as to manage the CM, with the Departmental Representative, CxM, and with other stakeholders as appropriate to the work.

The Consultant, during the design development and preparation of the construction documents, is to determine the extent and nature of the additional site services required during construction for the Consultant Site Representative to provide, beyond the basic construction site review services. For purposes of quoting the work, assume an allowance of fifteen (15) hours per week for the entire duration of Construction.

The Consultant Site Representative is responsible for providing additional (including overtime when construction operations perform multiple shifts per day) construction site reviews, beyond the basic construction site reviews, for critical aspects of the project, maintaining records of each site visit of all construction work placed. He is also to ensure constant communication amongst the Departmental Representative, CM, Provincial Department of Labour and other authorities having jurisdiction as directed by the Departmental Representative.

The Consultant Site Representative shall:

1. Seek authorization from the Departmental Representative prior to undertaking AS 4 Resident Services During Construction.
2. Be directly responsible to the Consultant and to all members of the Consultant's team of specialist sub-consultant disciplines.
3. Liaise with the Departmental Representative, CM, and with other project team members and stakeholders as directed by the Departmental Representative, maintaining the proper lines of communication.
4. Become thoroughly familiar with the Contract Documents, the National Building Code and all Fire Commissioner of Canada Standards for Construction Operations (incl. FCC No. 301 dated June 1982 and the Standard for Welding and Cutting FCC No. 302 dated June 1982). The consultant Site Representative shall also be aware of all Federal, Provincial and Municipal standards for the health and safety of construction workers.
5. Become thoroughly familiar with the requirements of the Consultant Project Brief and project responsibilities of others which relate to his services.

4.2 SCOPE AND ACTIVITIES - GENERAL

The Consultant Site Representative shall:

1. At the request of the Departmental Representative, provide additional inspection, clarification, coordination with other disciplines, and monitoring during the construction work and be responsible to the consultant. In addition, the departmental representative may delegate additional responsibilities subject to consultant's agreement.
2. Maintain records of each site visit, in a site review report, of all construction work completed and ensure constant communication amongst the Departmental Representative, CM, CxM, or as directed by the Departmental Representative or Consultant.
3. Coordinate and direct an assistant as approved by the Departmental Representative.
4. In case of emergencies, the Consultant Site Representative is empowered to stop the work, or give orders to protect the safety of the workers or Crown property. The Consultant Site Representative must notify the Departmental Representative promptly (within 12 hours) following the release of these instructions.

4.3 SCOPE AND ACTIVITIES - DETAILS

4.3.1 Inspection and Reporting

The Consultant Site Representative shall inspect all phases of the work in progress, for the purpose of bringing to the attention of the CM, after checking with the Consultant and Departmental Representative, any discrepancies between the work, the contract documents and accepted construction procedures. He shall keep a record of such inspections and shall issue a site review written report to the Consultant, for distribution, in the form directed. The Consultant Site Representative shall make any other reports or surveys as may be requested by the Departmental Representative through the Consultant.

4.3.2 Interpretation of the Contract Documents

Interpretation of the contract documents shall be the responsibility of the Consultant. The Consultant may, however, delegate specific duties while maintaining responsibility.

It shall be the duty of the Consultant Site Representative to assist the Consultant and to further inform the Consultant of any anticipated problems which may delay the progress of the work. The method for relaying such information shall be determined by the Consultant.

4.3.3 Changes in the Work

The Consultant Site Representative shall not authorize or order any change in the work which will constitute a change in design or in the value of the contract except as delegated by the Departmental Representative.

The Consultant may call upon the Consultant Site Representative to assist in the evaluation of changes in the work, where a knowledge of job conditions is required.

4.3.4 Communication & Liaison

The Consultant Site Representative shall:

1. Verify that the work on site is in accordance with the Construction Documents, confer and obtain guidance on these findings with the Consultant. The matter is then to be brought to the attention of the CM's Superintendent. Although informal discussions with Sub-trade Superintendents are usually permissible, (but only with the agreement of the CM), the Consultant Site Representative should not deal directly with foreman or tradesmen, or interfere with the progress of the work.
2. Communicate formally with the contractor in writing, and immediately the Departmental Representative and the Consultant.
3. Contact the Consultant immediately when it is apparent that information or action is required of the Consultant, (e.g. general instructions, clarifications, sample of shop drawing approvals, requisitions, contemplated change orders, site instructions, details, drawings, etc.)
4. Ensure that the Departmental Representative and Consultant are notified promptly when key pieces and/or components of materials and equipment are delivered, so that these parties can arrange for the appropriate personnel to have an opportunity to inspect prior to installation.

The Consultant shall provide copies of the site review report to the Departmental Representative for each of the site visits.

4.3.5 Site Review Reports

The Consultant Site Representative shall prepare a site review report for each site visit to the Consultant and the Departmental Representative in the form directed, including:

1. Progress relative to schedule;
2. Major activities started or completed at time of site visit; main activities in progress and major work done;
3. Workforce on site: construction firms on site, work being done by each firm, number of workers per firm, equipment on site (used and unused);
4. Major deliveries and removals of materials and/or equipment;
5. Any instructions given to the Contractor;
6. Difficulties encountered which may cause delays in completion;
7. Materials and labour needed immediately;
8. Cost estimates of work completed and materials delivered (for cost plus contracts) as may be requested by PWGSC;
9. Presence of inspection and testing firms, tests taken, results, etc.
10. Any outstanding information or action required by the Consultant or Departmental Representative;
11. Weather conditions, particularly unusual weather relative to construction activities in progress;
12. Shutdowns (time start and end/firms/workers affected);

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13. Other remarks;
 14. Accidents on site;
 15. Life safety or building hazards caused by the work, the contractor or his agents;
 16. Digital photographs, taken during the site visit, that illustrate activities on site, including deficiencies, progress, special conditions, etc. Incorporate date taken onto the photographs and into file names.

4.3.6 Inspection of the Work

The Consultant Site Representative shall make on site observations and spot checks of the work to determine whether the work, materials and equipment conform to the contract documents and supplementary conditions. The Consultant Site Representative shall advise the Contractor of any deficiencies or unapproved deviations via memorandum and report immediately to the Consultant and Departmental Representative any of these on which the Contractor is tardy or refuses to correct.

The Consultant Site Representative shall coordinate with the other disciplines if there are any issues on site and inform the Consultant and the Departmental Representative.

The Consultant Site representative shall also report if materials and equipment are being incorporated into the project prior to approval of relative shop drawings or samples.

The Consultant Site representative shall assist in the preparation of all deficiency reports, interim, preliminary, and final, in collaboration with the Departmental Representative and Consultant.

4.3.7 Site Meetings

The Consultant Site Representative shall attend all job-site meetings.

4.3.8 Inspection and Testing

The Consultant Site Representative must see that the tests and inspections required by the contract documents are conducted, and should observe these tests and report the results in the daily log.

The Consultant should be notified if the test results do not meet the specified requirements, or if the Contractor does not have tests undertaken as required.

4.3.9 Emergencies

In the case of emergency where safety of persons or property is concerned, or work is endangered by the actions of the CM, to safeguard the interests of the Client Department and Departmental Representative, the Consultant Site Representative shall give immediate written notice to the CM of the possible hazard. He shall further, if necessary, stop the work related to the safety concerns or give orders for remedial work, and contact the Consultant immediately for further instruction.

4.3.10 Limitations

The Consultant Site Representative shall not:

1. Authorize deviations from the contract documents.
2. Conduct tests.
3. Approve shop drawings or samples.
4. Advise the Client Department in any matter without obtaining guidance from the Departmental Representative and Consultant.
5. Accept any work or portions of the building.
6. Enter into the area of responsibility of the Contractor's Field Superintendent, without CM's permission
7. Stop the work unless convinced that an emergency exists as noted above.

AS 5 CLOSURE REPORT

The Consultant shall submit closure reports comprising of the following:

1. Introduction

- a. Project history;
- b. Scope of work;
- c. Description of design intent;
- d. Design development;
- e. Tendering process and award of contract.

2. Project implementation

- a. Start - up meeting;
- b. Work plan and schedule of work;
- c. Field testing and quality control;
- d. Progress meetings and minutes;
- e. Site Instructions;
- f. Change orders.

3. Issues and difficulties encountered during implementation

- a. Delays in the work;
- b. Lessons Learned.

4. Conclusion and Summary

5. List of Appendices

- a. Copy of specifications;
- b. Contract drawings;
- c. List of subcontractors and suppliers;
- d. Digital photographs;
- e. As-built drawings (digital version);
- f. Record drawings and specifications;
- g. Post contract drawings;
- h. Any other drawings related to the project;
- i. Any environmental report;
- j. Any other report related to the project.

AS 6 LABORATORY MOVE COORDINATION ADVISORY SERVICES

6.1 INTENT

The purpose of the Laboratory Move Coordination Advisory services is to ensure that EC's lab operations for each phase of the construction runs smoothly throughout the duration of the project until full occupancy. Advisory services will be required through all the stages of delivery to ensure that the project team coordinates all the design requirements of the moves through each phase of the project.

6.2 SCOPE AND ACTIVITIES:

The Consultant shall:

1. Review existing documentation and determine the phasing of the project;
2. Provide advice to the Client and Departmental Representative on the following:
 - a. Least number of moves required to maintain operation of the laboratory during the dismantling and construction of the new labs;
 - b. Most effective manner of dismantling their operation with the least impact to their operation.
3. Attend all project design meetings during the concept and design development stages;
4. Prepare phasing schedule for the installation of all equipment;
5. Coordinate with all disciplines the moving activities that impact the design to minimize delays of the construction and to meet the occupancy schedule for each phase of the construction;
6. Update the phasing schedule at each stage of design and during construction;
7. Coordinate with the CxM to reduce any impacts in commissioning the equipment;
8. Coordinate and review the schedule with the Planning and Scheduling Specialist and CM for any impacts in maintaining the laboratory operations.

6.3 DELIVERABLES:

The Consultant shall provide the following:

1. Phasing schedule during the design concept stage;
2. Revised phasing schedule at each change of scope requirements.

AS 7 INTERIOR DESIGN

7.1 INTENT

The consultant shall prepare concept designs for space planning and furniture layout leading to contract documents that are compliant with the latest version of building codes and fire code. Colour boards and material selection that addresses sustainable initiatives, corporate imagery, and fit up standards are to be included in the scope of work. For standards relating to the required services described in this standing offer, refer to the "Government of Canada Workplace 2.0 Fit-Up Standards" and the standards set out therein shall be adhered to. It is critical that all requirements that exceed or DO NOT form part of the "Government of Canada Workplace 2.0 Fit-Up Standards" be clearly identified and highlighted. Document and assist in identifying all requirements that exceed or are NOT part of the standards. All non-compliant components must respect the Fit-up Standards Approval and Governance process. Estimates and specifications including phasing strategy for swing space are to be addressed and represented in graphic fashion, with presentations made to the client group and departmental representative. Designated substance reports are to be reviewed for impact on finishes removal. Recycling initiatives for furniture and screens, as well as coordination with mechanical, electrical and telecommunications items for relocation are to be included in the overall submission package.

7.2 SCOPE AND ACTIVITIES

The Consultant shall:

1. attend all meetings and presentations required for the project. Additional consultant team members' shall be required to attend project team meetings to address their particular areas of expertise during the different delivery stages of the design process. The number and frequency of project team meetings are as defined in this Project Brief.
2. ensure all sub-consultants attend as required throughout the various phases of the project;
3. record the issues, decisions and action items (with responsibility) at each meeting and prepare and distribute meeting minutes within 72 hours of the meeting. Meeting minutes must clearly identify the status of the project. Presentation minutes must clearly identify any issues raised during the presentation that impacts cost, risk and schedule for the project;
4. make presentations as identified under the RS sections to support the review and approval process;
5. prepare and distribute status reports to the departmental representative on a monthly basis. Status reports must clearly identify any issues raised during the project the impacts on cost, risk and schedule for the project;
6. coordinate the scope of work and design with other disciplines;

7. review and coordinate the work of other contracts, if applicable such as furniture, audio-visual, security systems and it/telecommunications, and inform the departmental representative if the work of other contracts will impact the design layouts and other discipline work before proceeding with the implementation of the changes.

7.3 DELIVERABLES – DETAILS

The purpose of this section is to describe interior design services deliverables:

1. MASTER DRAWINGS

- a. Verify on-site conditions by preparing or updating master drawings to scale and in an approved AutoCAD format as per "Appendix D Doing Business with PWGSC - Standing Offers" and the PWGSC National CADD Standard including but not limited to, existing architectural/interior design, mechanical, electrical, structural, and communication/data elements on underside of suspended ceilings are correctly indicated.
- b. Submit for review. Revise as required. Resubmit for final approval.

2. SCHEMATIC PLANS

- a. During the Design Services Phase, based on Government of Canada Workplace 2.0 fit-up standards, prepare a maximum of two (2) schematic plans of one floor (or portion, depending on the size of the floor plate).
- b. The schematic plans must reflect the approved Client Department's overall functional requirements but not necessarily any particular group, division etc.
- c. The schematic plans must contain sufficient detail (including furniture, workstations etc.) to graphically illustrate the Government of Canada Workplace 2.0 Fit-Up Standards, and the design concept/functional programming as outlined in the LMP.
- d. The following must be included:
 - i. Identification of all partition including door swings;
 - ii. All circulation paths;
 - iii. Proposed workstation layouts for both enclosed offices and open areas;
 - iv. Support space for both enclosed areas and open areas;
 - v. Special purpose spaces as required to illustrate the overall design strategy; and
 - vi. Identification of all areas including name, room numbers and size.
- e. Provide a written justification and summary for each option including as a minimum: number of workstations and enclosed offices according to size and level, total number of end users, types and number of support spaces, types of special purpose spaces, percentage of circulation, percentage of building loss factor and percentage of open offices versus closed offices.

- f. The schematic plans must reflect the space allocation, approved functional program and project budget (refer to fit-up costs (m²/\$) outlined in the Government of Canada Workplace 2.0 Fit-Up Standards.
- g. The plans must be consistent with the building's configuration and systems including as a minimum: mechanical, electrical, structural, communications/data, security.
- h. Submit schematic plans for review. Revise as required. Resubmit for final approval pending review and approval by authorities having jurisdiction.

3. VERIFICATION OF LAB MODERNIZATION PLAN DELIVERABLES

- a. Review, update and/or complete Lab Modernization Plan, prepared by others. Refer to Required Services to determine list of services and deliverables required for the documents.
- b. Ensure content of Functional Program Document prepared by others includes required deliverables and that the deliverables are complete and still current, i.e. up-to-date and approved by the departmental representative.
- c. Update the functional program deliverables as required. Coordinate with Departmental Representative for any further information required for the completion of these documents.
- d. Submit for review. Revise as required. Resubmit for final approval.

SPECIALIZED SERVICES

SS 1 SUSTAINABLE DESIGN SPECIALIST

The Prime Consultant will perform an initial assessment early in the design stage that will inform PWGSC which level of rating the project will be able to achieve keeping in mind the minimum standards set forth in PWGSC's RPP 3 Green Globes.

The Consultant will be responsible for all tasks, including preparation of documentation, required for certification and will balance the requirements of the rating systems' credits, submissions with other project requirements. For more information visit the Green Globes System at <http://www.greenglobes.com/home.asp>

For the optional Master Plan scope of services the Sustainable Design Specialist will also advise the client and team on green initiatives that CCIW could implement to decrease their environmental footprint and increase their environmental sustainability. They will be responsible for preparation of the Sustainability Recommendations Report, refer to *OS 5 – Sustainability Strategies and Reports*.

Sustainable Development objectives must be addressed throughout the evolution of the project. Sustainable Development is defined in broad terms as a strategy that routinely and consistently includes the consideration of the environmental, economic and societal impact of every decision made for the project. The design description, either within each discipline or as a separate item, should indicate how the following sustainable design objectives are addressed:

- Project Management
- Energy
- Water
- Materials & Resources
- Emissions & Other Impacts
- Indoor Environment
 - Ventilation
 - Source Control of Other indoor pollutants
 - Occupant health, comfort and productivity
 - Lighting
 - Thermal comfort
 - Acoustic comfort

The Sustainable Design specialist shall register the project early in the process to ensure that the proper standards are being met and the project is in line to meet these requirements.

As well as the Treasury Board Policy on Management of Real Property, other guidance documentation outlining sustainable design principles to be included for federal real property projects include:

1. The Environmentally Responsible Construction and Renovation Handbook (<http://www.tpsgc-pwgsc.gc.ca/biens-property/gd-env-cnstrctn/index-eng.html>);
2. The Environmentally Responsible Green Office at a Glance Handbook (<http://www.tpsgc-pwgsc.gc.ca/biens-property/env/page-1-eng.html>);
3. Draft Strategic Framework for Sustainability in Buildings; and
4. Green Building Implementation Guide.

SS 2 IT / TELECOMMUNICATIONS SPECIALIST

The Consultant will be responsible for the management and coordination of an information technology/telecommunications professional to provide the advice and services required for the project. This individual shall coordinate the IT scope of work with the SSC representative identified by the Project Manager and the Electrical Engineer on the Consultant team.

The Consultant shall:

1. Provide advice on the requirements for the type of services required to engage the information technology/telecommunications professional to meet the project objectives;
2. Review and coordinate the information technology/telecommunications services required within the project parameters.
3. Provide advice and design for IT and telecommunication systems for interior fit-up spaces as part of the project.

SS 3 BUILDING CODE SPECIALIST

The Consultant will be responsible for the provision, management and coordination of a building code specialist to provide the advice and services required for the completion of the project.

The Consultant shall:

1. Provide advice on the requirements for the type of services required to engage the building code specialist to meet the project objectives;
2. Engage the building code specialist firm as a sub-consultant, as required;
3. Review and coordinate the building code specialist services required within the project parameters.

The following are the type of services where the building code specialist would be required:

1. Provide advice on interpretation of the National Building Code and Ontario Building Code and the differences between the two codes.
2. Review sites and/or projects for conformance of building codes, federal standards and other standards related to building code issues.
3. Provide services related to building code interpretation as part of the integrated services for the project or stand-alone services to federal departments.

SS 4 COMMISSIONING MANAGER (CxM)

4.1 INTENT

To achieve, verify and document that the performance of the facility and its various systems meet design intent as well as the Client Department's functional and operational needs. These activities and processes extend through all stages of the project from design development to occupancy, operation and post-occupancy. The commissioning process requires coordinated efforts from all members of the commissioning team.

Commissioning is a team effort among all parties involved in the project. It demands full cooperation in all stages of planning, design, construction, installation, activation and performance verification and operation. It also requires clear communications among all parties to achieve understanding of all requirements. This includes full documentation of major decisions and activities.

The commissioning team for this project shall include Commissioning Manager (CxM), Consultant, Departmental Representative, Construction Manager (CM) and his sub-contractors and testing agencies. The roles and responsibilities of the commissioning team are listed as follows:

1. Commissioning Manager (CxM)

A qualified professional who represents the Client Department interests to schedule and coordinate all commissioning activities during project delivery stage, as well as post-occupancy commissioning. The CxM is also responsible for the preparation of the Commissioning Plan, the Commissioning Schedule, and the preparation and completion of all applicable commissioning forms which include the Product Information (PI) Forms and Performance Verification (PV) Report Forms for the systems/equipment to be commissioned; review of applicable shop drawings; witnessing of all commissioning testing including startups and functional performance verification testing and post-occupancy testing for the systems/equipment to be commissioned; the timely submission of completed commissioning forms to Departmental Representative for review and approval; preparation and submission of the Final Commissioning Reports.

2. Consultant

Provides all design information required for commissioning to meet Client Department's functional requirements and maintain design intent of the base building systems, prepares the Design Intent Brief and Commissioning Brief and submits to CxM for coordination of the Commissioning Plan. The Consultant will verify that the base building and Client Department's functional and operational requirements are correctly interpreted during the design stage and contract documents, and that the building systems operate consistently at peak efficiencies, under all normal load conditions. The Consultant will manage and liaise with the CxM and incorporate the commissioning

requirements and standards into the design and construction contract documents.

3. Departmental Representative

Overall responsibility of the project delivery including approval of commissioning budget and schedule, resolution of contract disputes, approval of commissioning report and certification of final completion.

4. Construction Manager (CM)

The CM shall co-ordinate with the CxM to arrange personnel, sub-contractor(s) and qualified testing agencies for conducting pre-startup tests, equipment startup and testing, system startup and testing, TAB, functional performance verification, post-occupancy testing, O&M training sessions; submission of shop drawings, test results, as-built drawings and the operating and maintenance (O&M) manuals.

4.2 SCOPE AND ACTIVITIES - GENERAL

The objectives of commissioning for this project are as follows:

1. To demonstrate that the design and Client Department's functional and operational requirements are satisfied during the identification and delivery stages of the project, and to support quality management of construction and installation through verification of building components, systems and environments.
2. To document the operational, maintenance and building management requirements.
3. To minimize O&M costs through the careful selection of design solutions (for economy, reliability, durability, accessibility and, maintainability), construction materials, installation practices and, performance verification procedures.
4. To verify that selected design solutions and the resultant built works protect the safety, health, welfare and comfort of the building occupants and O&M personnel.
5. To define responsibility areas for meeting these operational requirements in the contract documents and include a process to demonstrate compliance.
6. To document the design intent of the overall project and the proposed building systems and components and to verify and demonstrate that all functional and operational requirements have been correctly interpreted in the design solution.
7. To verify and demonstrate that all systems operate efficiently under all normal load conditions.
8. To provide comprehensive documentation of the operational, maintenance and building management.
9. To implement a comprehensive training program.
10. To transfer the completed works to the qualified and trained facility operators.

4.3 SCOPE AND ACTIVITIES - DETAILS:

The CxM is responsible for the following key commissioning activities:

1. Provide Commissioning Plan
2. Provide Commissioning Schedule
3. Co-ordinate and conduct commissioning meetings. Provide agendas and minutes of meeting.
4. Review shop drawings
5. Provide PI and PV report forms
6. Co-ordinate and conduct pre-startup installation tests and submit test reports
7. Co-ordinate TAB. Verify TAB results
8. Co-ordinate and conduct commissioning testing for all equipment, systems and integrated systems listed under Extend of Commissioning
9. Complete and certify all recorded results of commissioning testing
10. Submit completed commissioning forms at a timely fashion (within 1 week after each test)
11. Co-ordinate O&M training and provide training report
12. Complete deferred Functional Performance Tests (post-occupancy testing) and submit test reports
13. Address fine-tuning
14. Provide Final Commissioning Report at end of all commissioning activities

The CxM shall provide the commissioning plan and coordinate and witness all commissioning activities required by this project based on the design documents, including, system or equipment start-ups, integrated system testing, demonstrations, training, etc.; coordinate and conduct functional performance verifications, and record all relevant test data on product information (PI) forms and performance verification (PV) report forms.

CxM to liaise with the Consultant and CM during the development of design documents, and submit samples of applicable commissioning forms for mechanical, electrical, and integrated systems to Consultant and Departmental Representative for review and approval. These forms shall include Product Information (PI) Forms and Performance Verification (PV) Report Forms for each equipment and/or system to be commissioned. Completed report forms shall be submitted for review within one week after each successful testing.

Coordinate with the Consultant and CM on the development of building management manuals which include standard operating procedures (SOP) manuals and operating and maintenance (O&M) manuals. The format of the building maintenance manual shall follow PWGSC Commissioning Guidelines CP.4.

Collaborate with the Design Consultant and General Contractor for the preparation of a training plan and the associated training materials. Coordinate the training.

4.3.1 Commissioning Requirements

4.3.1.1 Qualification

The CxM shall be a NEBB and/or ASHRAE certified professional specialized in building systems commissioning with experience in commissioning laboratories and associated equipment such as fume hoods.

Submit documentation confirming certification.

4.3.1.2 Commissioning Meetings

An initiation meeting will be arranged after the award of contract. During this meeting the CxM will have the opportunity to meet with the available members of the commissioning team, review all relevant design documentation and discuss specific commissioning requirements with the commissioning team to gain a complete understanding of the project scope and requirements. During this meeting the frequency, location, dates and time for holding the subsequent commissioning meetings during the project design and delivery stages will be established. Keep a record of the proceedings, prepare Minutes of Meeting, and distribute copies to all participants within one week after completion of each commissioning meeting.

4.3.1.3 Commissioning Schedule

Develop a commissioning schedule that reflects the deliverable completion and milestone dates of the overall project schedule and submit it to the Departmental Representative for review. The schedule shall be updated regularly to reflect project progress and revised deliverable completion and milestone dates. The commissioning schedule must correspond with the approved construction schedule and should also include separate commissioning meetings.

4.3.1.4 Commissioning Plan

This is the project-specific document which describes the process for verifying that all built works meet the base building and Client Department functional and operational requirements within the limits of the Working Documents.

The Commissioning Plan may have to be amended at the commencement of and during the delivery stage in light of the systems and equipment approved for installation, the Contractor's construction/completion schedule and/or the occupancy schedule.

Refer to PWGSC Commissioning Guidelines CP.3 for Model Commissioning Plan.

4.3.1.5 Product Information (PI) Forms

Purpose:

PI forms are intended to record full details of manufacturer's product information, construction, nameplate data, appurtenances, components, controls and all other purchasing data.

Procedure for Use:

The Cx. Manager shall:

1. Complete the form, including start-up and warranty data, immediately upon delivery to site.
2. Consult with Consultant and/or CM for equipment and/or system identification number. Include the appropriate identification number on all PI forms.
3. The completed form shall then be signed off by the CxM.
4. Submit completed PI form to the Consultant and Departmental Representative for review and approval.
5. The PI forms are to be included in the final commissioning report.

Development and use of report forms:

Refer to PWGSC Commissioning Guidelines CP.10.

4.3.1.6 Performance Verification (PV) Report Forms**Purpose:**

PV report forms shall be designed:

1. To record all design criteria, design intents, testing, adjusting, balancing and performance verification (PV) test results and all other data relating to components, equipment, sub-systems, systems and integrated systems;
2. To permit repetition of tests and re-commissioning in the future;
3. For verification and testing protocols relating to design criteria, design intent and operational requirements, and include provisions for:
 - a. Confirming operation as per design criteria and design intents,
 - b. Identifying variances between design and operation and reasons for these variances,
 - c. Verifying operation in all specified normal and emergency modes and under all specified load conditions,
 - d. Inclusions of analytical and other substantiating data,
 - e. Verifying all reported results,
 - f. Inclusions of additional data not previously specified but required by the CxM for further sub-system, system and integrated system testing.

Procedures for Use:

The CxM shall:

1. Complete the form, including "Shop Drawings" and "As Measured" portion of the PV report form upon completion of performance verification.
2. Consult with Consultant and/or CM for equipment and/or system identification numbers. Include the appropriate identification number on all PV report forms.
3. The completed form shall then be signed off by the CxM.

Submit completed PV report forms to the Consultant and Departmental Representative for review and approval.

The PV report forms are to be included in the final commissioning report.

Development and Use of Report Forms:

Refer also to PWGSC Commissioning Guidelines CP.10.

4.3.1.7 System Start-up and Pre-commissioning Testing

A full range of checks and tests to determine that all components, equipment, systems and interfaces between systems (e.g., emergency, fire, and life safety) operate in accordance with contract documents. This includes all operating modes, interlocks, control responses, and specific responses to abnormal or emergency conditions. Verification of the proper operation of the control system also includes verifying the interface of the control system with the TAB criteria and the response of EMCS controllers and sensors (if applicable).

The Cx.M shall select, at random, 10 percent of the reported TAB results for verification, and any failure of selected items shall result in the rejection of the TAB report. The CM and/or his sub-contractors and testing agencies will provide instrumentation and qualified technical personnel for conducting this verification.

4.3.1.8 Functional Performance Verification

This verification shall determine if the systems are providing the required services in accordance with the design intent. If the verification cannot be completed due to seasonal reasons, lack of occupancy, deficiencies beyond the scope of the mechanical or electrical work, or any other reason, this shall be noted along with a statement of when such tests will be completed. If any deficiencies require corrective work, the tests shall be repeated after such work is completed, and this process shall continue until acceptable performance to the Departmental Representative and/or the CxM is achieved. The CM and/or his sub-contractors and testing agencies will provide instrumentation and qualified technical personnel for conducting this verification.

4.3.1.9 Training Plan

Develop a training plan for each discipline based upon project requirements. Submit the training plan to the Departmental Representative for review and approval.

Refer to PWGSC Commissioning Guidelines CP.5.

4.3.1.10 O&M Training

Co-ordinated by the CxM, the O&M training shall include familiarization sessions, hands-on instruction and classroom sessions to include:

1. Review of Standard Operating Procedures (SOP) Manual and Operating and Maintenance (O&M) Manuals.
2. Operational procedures for the systems under all modes of operation
3. Acceptable tolerances for system adjustments
4. Procedures for dealing with abnormal and emergency situations

4.3.1.11 Training Report

Submit a summary of the O&M training and demonstration sessions. Indicate dates, subject matter, and all personnel present for training. Submit the training report to the Consultant and Departmental Representative after the completion of all training and demonstration sessions.

4.3.1.12 Final Commissioning Report

Purpose:

Submit a de-briefing report and building evaluation summary which includes:

1. Complete assessment of the project;
2. Lessons learned from this project and any necessary recommendations;
3. Variances between the actual and planned levels of performance;
4. Evaluation of the commissioning process;
5. Components and systems which were not commissioned and the reasons;
6. Remedial work plan outlining recommended follow-up actions or projects to be undertaken by PWGSC;
7. Other related issues.

Preparation of Final Commissioning Report:

Refer to PWGSC Commissioning Guidelines CP.8.

4.4 DELIVERABLES:

Consultant:

1. Design Brief
2. Commissioning Brief
3. Commissioning Specifications
4. Working Drawings
5. Standard Operating Procedures (SOP) Manuals
6. Record Drawings

Commissioning Manager (CxM):

1. Commissioning Plan
2. Product Information (PI) Forms

3. Performance Verification (PV) Report Forms
4. Commissioning Schedule
5. Minutes of Commissioning Meetings
6. Training Plan and Training Materials
7. Training Report
8. Post-Occupancy Commissioning
9. Final Commissioning Report

Construction Manager (CM):

1. Construction Schedule
2. Shop Drawings and Product Data
3. Installation inspection and test reports
4. Equipment and system start-up checklists
5. TAB reports
6. As-built drawings
7. Operating and Maintenance (O&M) Manuals
8. Training Course Materials

OPTIONAL SERVICES

OS 1 FUNCTIONAL PROGRAMMING (FOR ENTIRE FACILITY)

1.1 INTENT

The Consultant shall gather sufficient information to analyze the existing utilization of the building and develop an understanding of EC's functional and operational requirements for the entire CCIW facility. The Consultant shall investigate opportunities for increasing the space use efficiency of the CCIW complex, using the current Laboratory standards and the Government of Canada Workplace 2.0 Fit-up Standards for the office areas.

The Consultant will examine the current space utilization of the facility, determine program and spatial inefficiencies, and develop a new functional program that works to incorporate new and emerging science and technology to better meet the current and future lab users' needs.

1.2 SCOPE AND ACTIVITIES

The Consultant shall:

1. Meet with and interview the user groups to identify and evaluate their current space utilization and future functional and operational requirements for staffing, laboratory areas, support areas, special purpose areas, spatial relationships and adjacencies, and the impact of these requirements on the base building's infrastructure.
2. Attend meetings, communicate with and coordinate the other consultants and specialists.
3. Develop the format for the Functional Program Document and draft 'Table of Contents'. Submission must also include as a minimum the formatting for spreadsheets, room data sheets, cost estimates, and reports. Submit for review. Revise as required. Resubmit for final approval.
4. Prepare, coordinate and consolidate the following sections of the Functional Program Document:
 - a. Space Recommendations Report;
 - b. Functional Space Equation (Space Analysis Requirement);
 - c. And, Consolidate the Functional Program Document.
5. Submit for review. Revise as required. Resubmit for final approval.

1.3 DELIVERABLES

The Consultant shall provide a Functional Program Report describing CCIW's space requirements in a written and graphic format and including recommendations and identification of opportunities for space consolidation in accordance with the Government of Canada Workplace 2.0 fit-up standards, and project budget.

The Consultant shall, based on the specific requirements of the call-up, provide the following:

1.3.1 SPACE RECOMMENDATIONS REPORT

1. Gather and document the different Client Department's current space utilization and future space requirements in a written and graphic format including but not limited to all work station type and finishes, i.e. systems furniture, free-standing, soft seating, case goods etc., electrical, mechanical, telephone and data requirements.
2. Categories for the Space Recommendations Report shall include, but are not limited to:
 - a. Administrative space
 - b. Laboratory space
 - c. Support space
 - d. Special purpose space
3. Analyse information gathered and make recommendations in accordance with the current Laboratory standards and Government of Canada Workplace 2.0 fit-up standards, the Client Department's functional requirements and proposed planning alternatives and provide the following:
 - a. Identification of opportunities for space optimization/consolidation;
 - b. A document indicating the effects of each of the proposed planning alternatives, based on the Client Department mission statement, functional requirements, space allocation, and project budget. Provide written justification and rationale for each of the planning alternatives.
 - c. Requirements for off-site spaces, if applicable, must also be included and clearly noted as such.
 - d. Ensure funding mechanism for any special purpose space has been identified. As required, provide justification regarding technical requirements and estimated fees related to the fit-up of special purpose spaces.
 - e. Seek approval of the special purpose space from the appropriate Client Departmental representative, Departmental representative (e.g.. Accommodation Manager), through the departmental representative.
4. Consolidate the information into a Space Recommendations Report. Submit for review. Revise as required. Resubmit for final approval.

1.3.2 FUNCTIONAL SPACE EQUATION (SPACE ANALYSIS REQUIREMENT)

1. Prepare a detailed functional space equation in a spreadsheet format. The functional space equation must identify space requirements (in m²) by group along with summary of the total space required for all groups for the following current and future requirements:
 - a. Approved staff listings including as a minimum all full time and part time employees, students. List by person, group, section, division etc.;
 - b. Open workstations;
 - c. Enclosed workstations;
 - d. Support space;
 - e. Collaborative Space;

- f. Special purpose space;
 - g. Circulation factor;
 - h. Building loss factor;
 - i. Total population;
 - j. Total space required;
 - k. Summary by group and Department; and,
 - l. Non-complaint versus complaint spaces.
2. Identification of requirements for off-site special purpose spaces, if applicable, must also be included and clearly noted as such.
3. Submit for review. Revise as required. Resubmit for final approval.

1.3.3 CONSOLIDATION OF FUNCTIONAL PROGRAM DOCUMENT

1. Consolidate the functional requirements information, including sub-consultant and specialist work into the Functional Program Document as per the approved format.
2. When conflicting requirements or recommendations occur, provide an integrated recommendation together with adequate justification.
3. Prior to final submission of the final functional program document, it is the consultant's responsibility to ensure that all requirements, which are NOT part of Government of Canada Workplace 2.0 Fit-Up Standards, have been clearly identified.
4. Submit for review. Revise as required. Resubmit for final approval.

OS 2 FUNCTIONAL PROGRAMMING – MASTER PLAN (FOR ENTIRE FACILITY)

2.1 INTENT

If the option for Master Planning Services is exercised the Consultant shall add the additional scope described herein to those already listed in *OS 1 – Functional Programming (for entire facility)*.

2.2 SCOPE AND ACTIVITIES

The Consultant shall:

1. Prepare, coordinate and consolidate the following sections of the Functional Program Document:
 - a. Gap Analysis;
 - b. Proximity Recommendations Report;
 - c. Communications / Data Recommendations Report;
 - d. Audio-Visual Recommendations Report;
 - e. Furniture and Workstations Recommendation Report;
 - f. Room Data Sheets;
 - g. Horizontal Zoning Plans;
 - h. Vertical Stacking Diagrams;
 - i. Zoning (Bubble) Diagram;
 - j. Consolidation of Functional Program Document.
2. Submit for review. Revise as required. Resubmit for final approval.

2.3 DELIVERABLES

The Consultant shall provide a Functional Program Report describing CCIW's space requirements in a written and graphic format and including recommendations and identification of opportunities for space consolidation in accordance with the Government of Canada Workplace 2.0 fit-up standards, and project budget.

The Consultant shall, based on the specific requirements of the call-up, provide the following:

2.3.1 GAP ANALYSIS

1. Prepare a gap analysis in graphic format using the Government of Canada workplace 2.0 fit-up standards, and the Space Allocation Limits of the Framework for Office Accommodation and Accommodation Services. Gap analysis must identify open and closed office, support space, special purpose space and items, which exceed the standards.
2. Calculations for Space Allocation Limits will be provided at the time of Call-Up.

3. Identify, highlight and clarify all additional costs, which are outside the Government of Canada workplace 2.0 fit-up standards. Outline in the gap analysis, who is responsible for the additional costs.
4. Consultant to document all non-compliant items complete with justifications (provided by Client Department).
5. Submit for review. Revise as required. Resubmit for final approval.

2.3.2 PROXIMITY RECOMMENDATIONS REPORT

6. Document the Client Department's current and future proximity requirements for staff (by person-to-person, group-to-group, section-to-section etc.), support spaces and special purpose spaces. Examine the effect these may have on other functional requirements and proposed planning alternatives and make recommendations.
7. Prepare work flow diagrams for support and/or special purpose spaces.
8. Prepare proximity diagram that documents Client Department's functional requirements in a graphic format. Prioritize level of importance for each proximity requirement identified.
9. Submit for review. Revise as required. Resubmit for final approval.

2.3.3 COMMUNICATIONS/DATA RECOMMENDATIONS REPORT

1. Prepare a report to document the Client Department's current and future communications/data requirements and the effect these may have on other functional requirements and proposed planning alternatives. Report to be in accordance with the Government of Canada Workplace 2.0 Fit-Up Standards.
2. Prepare recommendations and all necessary modifications to the base building. Assess the impact of those modifications on overall space, time and budget.
3. Coordinate work performed by Mechanical and Electrical sub-consultants and incorporate into the Communications/Data Recommendations Report.
4. Submit for review. Revise as required. Resubmit for final approval.

2.3.4 AUDIO-VISUAL RECOMMENDATIONS REPORT

1. Gather and document the Client Department's audio-visual requirements in a written and graphic format including existing and new equipment, whiteboards, projector screens and other components requirements including the power, data and audio-visual cabling to support the operation of the equipment.
2. Analyze information gathered and make recommendations for the compatibility of the equipment, if used within the same room and/or a mixture of existing and new equipment, and any additional requirements to accommodate the audio-visual equipment in the meeting rooms, training rooms or special purpose rooms requirements in accordance with the Government of Canada Workplace 2.0 Fit-Up Standards.
3. Provide recommended layouts for locating the audio-visual equipment within the specific rooms.

4. Prepare a class 'C' cost estimate for the procurement of new equipment and the installation of the equipment for Client Department's budget purpose of procuring their audio-visual equipment contract.
5. Submit for review. Revise as required. Resubmit for final approval.

2.3.5 FURNITURE AND WORKSTATIONS RECOMMENDATIONS REPORT

1. Gather and document the Client Department's furniture and workstations requirements in a written and graphic format including all workstation type and finishes, i.e. systems furniture, free-standing, soft seating, case goods etc., electrical, telephone and data requirements.
2. Analyze information gathered and make recommendations for the development of workstations standards in accordance with the Government of Canada Workplace 2.0 Fit-Up Standards and provide the following:
 - a. Recommendations based on the Client Department functional requirements and proposed planning alternatives, for layouts for each category of furniture and workstations required (including as a minimum furniture type, layout, panel screen height(s) and widths and power requirements);
 - b. A comparative (i.e. quantitative and qualitative) analysis between existing furniture and workstations and each of the proposed planning alternatives in sufficient detail to facilitate selection by the Client Department;
 - c. A document indicating the effects of each of the proposed planning alternatives, based on the Client Department mission statement, functional requirements, space allocation, and project budget. Provide written justification and rationale for each of the planning alternatives.
 - d. A maximum of three (3) layouts for each category of workstation required;
3. Submit for review. Revise as required. Resubmit for final approval.

2.3.6 ROOM DATA SHEETS

1. Compile all the data per room function (number of occupants; area in m2; critical dimensions; functional and operational requirements; essential proximity; unique characteristics or features of space; architectural requirements: wall type, STC rating, fire resistance rating, wall finishes, floor and ceiling finishes, doors/door frames and interior glazing, millwork, specialties (i.e. tackboards, whiteboards, tack strips, chair rail, corner guards); structural requirements; mechanical requirements: HVAC, plumbing; electrical requirements: power and lighting; Telecommunications requirements: voice, data and equipment; furniture and equipment requirements; security requirements: door hardware, duress alarm, security system such as motion detector, door contact, card access, camera; audio-visual requirements: equipment, black out blinds, projector screen, remote control, lighting control; signage requirements; other special requirements) for each typical and special purpose room and prepare room data sheet as per the approved room data sheet format.
2. Submit for review. Revise as required. Resubmit for final approval.

2.3.7 HORIZONTAL ZONING PLANS

1. Prepare horizontal zoning plans (i.e. block plans) per floor based on the Client Department's approved functional program, and vertical stacking. Number of plans, to be identified, at time of call up.
2. Include identification of all areas and location of all main circulation aisles, designation (in m²) and position level for workstations/work settings, and designation (in m²) for support spaces and special purpose spaces. Units, divisions etc. must also be identified. Consultant to also provide a count of number of users per group and per floor.
3. Submit for review. Revise as required. Resubmit for final approval.

2.3.8 VERTICAL STACKING DIAGRAMS

1. Prepare vertical stacking plans for each building based on the Client Department's approved functional program, proximity requirements, and space equation.
2. Number of diagrams, to be identified, at time of call up.
3. Submit for review. Revise as required. Resubmit for final approval.

2.3.9 ZONING (BUBBLE) DIAGRAM

2. Prepare zoning (bubble) diagrams based on the Client department's functional program, space allocation and horizontal zoning plans, for all spaces forming part of the project.
3. Number of diagrams to be identified at time of call up
4. Zoning (bubble) diagrams are to include as a minimum the following:
 - a. Identification and location of hard walls/partitions;
 - b. Identification of primary and secondary circulation aisles;
 - c. Identification of (group and position titles/position levels or names) and area designation (in m²) for workstations (by group/position names); and
 - d. Identification and area designation (in m²) for support spaces and special purpose spaces.
5. Submit for review. Revise as required. Resubmit for final approval.

2.3.10 CONSOLIDATION OF FUNCTIONAL PROGRAM DOCUMENT

5. Consolidate the functional requirements information, including sub-consultant and specialist work into the Functional Program Document as per the approved format.
6. When conflicting requirements or recommendations occur, provide an integrated recommendation together with adequate justification.
7. Prior to final submission of the final functional program document, it is the consultant's responsibility to ensure that all requirements, which are NOT part of Government of Canada Workplace 2.0 Fit-Up Standards, have been clearly identified.
8. Submit for review. Revise as required. Resubmit for final approval.

OS 3 INVESTIGATIONS AND REPORTS

3.1 INTENT

The Consultant shall investigate the existing conditions and building systems of the entire CCIW complex, record the conditions and provide recommendations for improvements to recapitalize the facility and to ensure health and safety of its occupants. The Consultant shall utilize these recommendations to provide a 10 and 20-year Master Plan for the CCIW facility.

3.2 SCOPE AND ACTIVITIES

The Consultant shall perform on site investigations, including but not be limited to the following:

1. Review existing studies, documentation and reports, including original construction documents;
2. Review existing building conditions and building systems;
3. Review and identify recently renovated areas and past modifications to the complex;
4. Pursue more detailed investigation of building elements as required, including the deconstruction of selected components with the permission from the Departmental Representative;
5. Record findings of the investigation, including drawings and photographs, a description of the conditions and the design capacity of the building systems;
6. Identify all deficiencies, potentials and constraints with the existing systems;
7. Recommend remedial measures for the noted deficiencies and/or options for improvements;
8. Prepare a report which includes the results of site investigations, recommendations of alternative remedial measures for deficiencies and/or options for improvements, with the associated cost and schedule implications of each option.

3.3 DELIVERABLES

The Consultant shall provide the following:

1. BUILDING CONDITIONS REPORT (BCR)

The Consultant shall:

- a. Review existing Building Conditions Report and verify with existing conditions
- b. Issue a summary report to be included as part of the Master Plan, including but not limited to:
 - i. A gap analysis between report and existing conditions
 - ii. A summary of recommendations identifying priority projects, updating costing, and recommended expenditures

2. BUILDING CAPABILITY RECOMMENDATIONS REPORT

- a. The intent of the Building Capability Report is to investigate, assess and analyze how well the building(s) meets Client Department requirements, and make

recommendations to suit the Client Department's requirements. This report must not be confused with a Building Condition Report (BCR) which identifies the capital improvement requirements necessary to maintain an asset at a specified level, throughout and at the end of a set planning horizon.

- b. The consultant must assess the capability of the existing building infrastructure and systems including as a minimum architectural, interior design, mechanical, electrical, structural, conveying system, communication/data, and security, to determine how effectively the building(s) meets Client Department requirements.
 - c. Prepare the Building Capability Report in reference to the Client Department's functional requirements. The report must include but will not necessarily be limited to:
 - i. Results of site investigations and comprehensive review of the project requirements;
 - ii. Location and capability of existing infrastructure and building systems including architectural/interior design, mechanical, electrical, structural, conveying system, communications/data and security systems;
 - iii. Deferred maintenance; curable/incurable equipment obsolescence; design problems and deficiencies that are likely to affect the Client Department requirements;
 - iv. Identification of all deficiencies, potentials and constraints with the existing building systems to support the Client Department's functional requirements and proposed planning alternatives;
 - v. Areas of concern including an assessment of their impact on space, time and budget; and
 - vi. Preliminary recommendations and alternative remedial measures for areas of concern;
 - vii. Preliminary assessment of the buildings conformance with the PWGSC Sustainable Development Strategy; and,
 - viii. In buildings or floor spaces where existing construction and or fit up exist and are to be reused, assess building conformance with the Government of Canada Workplace 2.0 Fit-Up Standards.
 - d. Coordinate work performed by Mechanical and Electrical engineering sub-consultants and incorporate into the Building Capability Recommendations Report. Mechanical and electrical engineering services must be complete in that they identify all issues that will have a significant impact on the project.
 - e. Submit for review. Revise as required. Resubmit for final approval.
3. SUSTAINABILITY RECOMMENDATIONS REPORT
- a. Sustainability Recommendations Report will include but will not necessarily be limited to the following:
 - i. Identification of construction, renovation and demolition waste materials diversion target (minimum is 75% or more);

- ii. Recommendations for sustainable sound construction materials (renewable, recycled content, durable materials);
 - iii. Energy and water efficiency in facilities (including heating, ventilation, lighting, low water consumption appliances, etc.); and,
 - iv. Complete sustainability checklist using either Green Globe Fit up or LEED Commercial Interiors tool. The checklist must include the projected Sustainability
 - v. Goal intended to be achieved and the rationale for including and excluding specific elements on the checklist.
- b. Coordinate work performed by Mechanical and Electrical engineering sub-consultants and incorporate into preliminary report.
 - c. Submit for review. Revise as required. Resubmit for approval.
 - d. For further information refer to AS 8 – Sustainability Strategies and Reports.

OS 4 FEASIBILITY REPORT

4.1 INTENT

The Consultant shall prepare a Feasibility Report, which presents the project parameters and defines the potential solutions to the defined problems, needs or opportunities for the current and future operational requirements of the CCIW complex. The Investigation and Report and Functional Programming should be used as input to the preparation of the FR.

The consultant shall prepare feasibility studies for building requirements, site plan and space planning designs for the proposed renovations. Cost studies, graphic representations, etc. are to accompany the text document to further clarify or explain the rationale for decisions. The Feasibility Report will identify the separate work packages for the 10 and 20-year Master Plan and provide detailed information, as outlined below and in the Functional Program required service, such that adequate information for scope, duration, and budget is given for each work package.

The consultant shall attend client and stakeholder meetings to gather and present information. The consultant shall also record and distribute minutes at a frequency to be determined in conjunction with the departmental representative.

4.2 SCOPE AND ACTIVITIES

The Consultant shall:

1. Provide a written verification of project requirements that includes objectives, parameters, timelines and budget, with reference to roles and responsibilities, lines of communications, and submission requirements for approvals, presentations, reviews;
2. A project schedule with periodic updating as determined with the departmental representative;
3. Assistance in preparing a risk management report for the departmental representative.
4. Implementation strategies that document task/activities, milestones, process for information gathering, project goals and deliverables;
5. Provide a description of the CCIW complex, including the overall condition and its main systems, as summarized from the Building Condition Report (BCR);
6. A Security Recommendations Report of the Client Department's current and future security requirements and the effect they may have on the feasibility studies;
7. A Communication/Data Recommendations Report of the Client Department's current and future requirements and the effect they may have on the feasibility studies.
8. Verification of on-site conditions through the preparation and updating of master drawings to scale and in an approved AutoCAD format;

9. Building capability recommendations report to address current and future interior and exterior conditions, systems, access, conveying systems, washrooms, and other items that are likely to affect the Client Department's requirements;
10. Preliminary sustainability recommendations report which may include information related to reuse, recycling, waste diversion, energy and water efficiency in facilities and use of durable materials;
11. Support and Special Purpose Space Recommendations Report including opportunities for space consolidation, with the intent of conforming to the Client Department Fit-up Space requirements;
12. Functional Space Equation that addresses the space requirements in square meters (sm) along with the summary of the total space required for all groups for current and future requirements for open and enclosed workstations, support space, circulation and the other applicable areas, including off-site special purpose spaces;
13. Discuss the operational, financial, and functional performance of the buildings and identify any future plans and strategic consideration pertaining to the use of the CCIW complex;
14. Describe the health and safety issues and any potential impacts on the users;
15. Clearly state the problem or opportunity being assessed;
16. Separate the identified project requirements into a series of work packages as part of a 10 and 20-year Master Plan to be delivered separately by the Consultant team and CM;
17. List and analyze all available options for meeting the identified project requirements, and document the results of the feasibility assessment of each of the options; including:
 - a. Include an indicative (Class D) cost estimate for construction for each option;
 - b. Identify all non-financial factors which may have a bearing on the selection of the preferred options;
 - c. Support and Special Purpose Space Recommendations Report including opportunities for space consolidation, with the intent of conforming to the Client Department Fit-up Space requirements;
 - d. Functional Space Equation that addresses the space requirements in square meters (sm) along with the summary of the total space required for all groups for current and future requirements for open and enclosed workstations, support space, circulation and the other applicable areas, including off-site special purpose spaces;
 - e. Identify the key risk factors associated with each of the options;
18. Identify which options are recommended for further analysis in preparation of the IAR.

4.3 DELIVERABLES

The Consultant shall provide a Feasibility Report document that consolidates all the requirements of the feasibility exercise with allowance for resubmission for final approval after review by the Departmental Representative.

OS 5 DESIGN CONCEPT – MASTER PLAN

5.1 INTENT

To translate the project requirements into parameters for the 10 and 20-year Master Plan. To explore design options and analyze them against priorities and program objectives previously identified. Out of this process, the information will be consolidated into a Master Plan and the scope of work will be broken down into identified work packages. Each of the deliverables will provide an overview of the Master Plan, as well as detailed information for each work package.

5.2 SCOPE AND ACTIVITIES

The Consultant shall:

1. Present alternative design options for the Master Plan, which are viable and have potential for development;
2. Analyze each solution with regard to the project goals including cost and schedule;
3. Recommend one option for further development with all supporting background and technical justifications.
4. Submit to the Departmental Representative, design concept documents in sufficient detail to illustrate the design concept and to demonstrate compliance with the Project requirements
5. Submit a preliminary Construction Cost Estimate, Cost Plan and Project Schedule to confirm the feasibility of the Project;
6. Provide copies of all design concept documents in the type and number specified in 1.13 General Project Deliverables
7. Develop alternative solutions which accommodate the Client User Program, and adhere to the project budget. Drawings will include analytical diagrams, schematic bubble diagrams, plans, elevations, and sections, room names and sizes. Perspective sketches may be requested;
8. Provide option analysis, complete with life cycle cost analysis; and

5.3 DELIVERABLES

The Consultant shall provide the following:

1. Design Concept Drawings of all disciplines;
2. Description of the options with recommendation of preferred solution;
3. Class 'C' Estimate;
4. Report on deviation from schedule and recommend corrective measures or updated time line.

5.4 DELIVERABLES - DETAILS

The Consultant shall provide the following:

5.4.1 Architectural:

1. Site plan showing building outlines, orientation, main accesses and traffic patterns;
2. Schematic building plans of alternatives showing relative disposition of administration and laboratory areas, circulation patterns, building areas, numbers of floors, etc.
3. Sketch elevations and sections indicating basic design approach and aesthetic philosophy;
4. Outside gross building areas and summary of main accommodation areas required and proposed;
5. Horizontal and Vertical space relationships;
6. Preliminary phasing plans.

5.4.2 Structural:

1. Proposed or alternative structural systems where applicable.

5.4.3 Mechanical:

1. Include a description of specific mechanical requirements and function for each area (room) in the buildings, along with a schedule of requirements listing all rooms and identifying the mechanical building services to be provided;
2. Explain in the concept submission the manner in which the proposed mechanical systems correlate with user requirements;
3. Identify the delivery rate of supply air to occupied spaces;
4. Identify location of entry point into the building of all mechanical services into each building;
5. Identify in square metres the area to be provided for mechanical rooms, and identify the percentage of total building area this represents. Identify location of mechanical spaces in each building.
6. Provide an analysis of alternative mechanical schemes at the conceptual design stage that reveals energy consumption of building systems, operating and maintenance costs on a month by month basis for a time span of one year. The estimated energy, operating and maintenance costs shall be used in life cycle cost analyses on a projected building life of 25 years to determine the most beneficial mechanical systems alternative.
7. Carry out energy analyses on system alternatives;
8. Establish an energy budget for the building and compare it to energy consumption of other similar buildings. Total energy consumed in the building shall be expressed in MJ/m²
9. Submit a complete energy analysis as described in this section.

-
10. List any non-Canadian products and materials proposed for the project with a written justification.

5.4.4 Electrical:

1. Proposed basic electrical systems of significance to the early design;
2. Site plan showing location of service entrances;
3. Distribution diagram showing single line diagrams to distribution centres;
4. Floor plans complete with locations of major electrical equipment and distribution centres, power outlets, lighting, and telecommunications that are impacted by this project;
5. A list of equipment with power requirements;
6. Provide an electrical design synopsis with cost figures and loads, describing the electrical work in sufficient detail for assessment and approval by the Departmental Representative.
7. List any non-Canadian products and materials proposed for the project with a written justification.

5.4.5 Commissioning:

1. Develop scope of work / terms of reference to engage a Commissioning Manager (CxM).

5.4.6 Sustainable Development

1. Design and evaluate Design Options exploring positive environment strategies.

5.4.7 Designated Substances Survey

1. Review Designated Substances and Hazardous Materials Survey for any impact to the design and performance of the building systems and inform the Departmental Representative of any issues;
2. Identify areas within the project parameters where additional sampling of existing materials may be required, and develop scope of work / terms of reference to engage an environmental Consultant;
3. If abatement is required, coordinate with project scheduler and other disciplines for impact to the scope of work. The environmental consultant will prepare abatement drawings and specifications to be included into the project tender documents and monitor the site.

OS 6 SUSTAINABILITY STRATEGIES AND REPORTS

6.1 INTENT

The consultant, as strategic advisor for the project, is to research and investigate a wide range of sustainability strategies for the specific project with the objective to achieve the assessment tool targets that conform to PWGSC's diverse green building commitments as described in "PWGSC – Strategic Framework for Sustainability in Buildings" including; but, not limited to:

1. Recycling and reuse of materials, systems, equipment;
2. Procurement of "green" materials;
3. Energy reduction and management;
4. Water management
5. Waste reduction and management;
6. Life-cycle costing, cost benefit analysis;
7. Integrated Design process.

6.2 SCOPE AND ACTIVITIES:

The consultant shall:

1. Research and investigate sustainable development strategies in the context of the project and make recommendations
2. Prepare a detailed inventory of existing non-contaminated materials, systems, equipment identified for reuse or recycling. Include target markets for recycled material and make recommendations. Verify with client department. Revise as required. Obtain approval.
3. Investigate and identify potential "green" building materials and products for the project include sourcing (i.e. In order to meet government objectives, sole source may be necessary). Verify with client department. Revise as required. Obtain approval.
4. Investigate and analyze potential to exceeding the Model National Energy Code by 30% to 50%. Make recommendations for an Energy Reduction and Management plan.
5. Investigate and analyze potential to increasing energy efficiency, and strategies to decrease water run-offs
6. Develop a non-hazardous and hazardous waste reduction and management plan. Make recommendations, verify with client department. Revise as required. Obtain approval.
7. Based on the recommendations included in 1 to 4, perform a cost / benefit and life-cycle costing analysis for the Sustainability Strategy for the project.

6.3 SCOPE AND ACTIVITIES - DETAILS:

1. At the Analysis Stage:

The Consultant shall prepare a sustainability development strategies and report that includes the following aspects as a minimum:

- a. Review potential for environmental impacts and application of the Canadian Environmental Assessment Act (CEAA)
- b. Review and confirm the proposed assessment of Sustainable Development Design standards to be applied to the project, such as to achieve LEED certification.
- c. Establish a policy for the project to minimize environmental impacts consistent with the project objectives and economic constraints.
- d. Identify sustainable design opportunities, strategies, targets, preliminary budgets (i.e. energy, water, waste, etc.).

2. At the Design Concept Stage:

The Consultant shall provide a Sustainable Design Strategy that includes the following as a minimum:

- a. Provide sustainable design opportunities, strategies, preliminary budgets (i.e. energy, water, waste, etc.). Demonstrate life cycle costing for a sustainable design allowance to demonstrate that investment in sustainable technologies and processes return a value to PWGSC.
- b. Identify which LEED water efficiency credits, energy credits, material credits, indoor environmental quality credits will be pursued. For those credits identified, provide a short description on how they will be achieved.

3. At the Design Development Stage:

The Consultant shall provide, as a minimum:

- a. Updated sustainable design opportunities, strategies, updated budgets (i.e. Energy, water, waste, sustainable procurement strategies, etc.).
- b. Updated energy analysis and energy budget established for all disciplines at the Design concept stage.
- c. Information on all internal and external energy loads in sufficient detail to determine the compatibility of the proposal with existing services, approved concept and energy budget.
- d. LEED target (as per the Strategic Framework Summary Tables of PWGSC – Strategic Framework for Sustainability in Buildings) for the determined system scorecard indicating which credits the design does or will meet.

6.4 DELIVERABLES:

The Consultant shall:

1. Submit the Sustainability Strategy for review, in a report.
2. Revise as required.
3. Resubmit for final approval.

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SUBMISSION REQUIREMENTS AND EVALUATION

SRE 1 General Information

SRE 2 Proposal Requirements

SRE 3 Submission Requirements and Evaluation

SRE 4 Price of Services

SRE 5 Total Score

SRE 6 Submission Requirements - Checklist

SUBMISSION REQUIREMENTS AND EVALUATION

SRE 1 GENERAL INFORMATION

1.1 Reference to the Selection Procedure

An 'Overview of the Selection Procedure' can be found in R1410T General Instructions to Proponents (GI3).

1.2 Calculation of Total Score

For this project the Total Score will be established as follows:

Technical Rating x 80%	= Technical Score (Points)
Price Rating for Percentage Fee x 15%	= Price Score for Percentage Fee (Points)
<u>Price Rating for Optional Services x 5%</u>	<u>= Price Score for Optional Services (Points)</u>
Total Score	= Max. 100 Points

SRE 2 PROPOSAL REQUIREMENTS

2.1 Requirement for Proposal Format

The following proposal format information should be implemented when preparing the proposal.

- Submit one (1) bound original plus three (3) bound copies of the proposal;
- Paper size should be - 216mm x 279mm (8.5" x 11");
- Minimum font size - 11 point Times or equal;
- Minimum margins - 12 mm left, right, top, and bottom;
- Double-sided submissions are preferred;
- One (1) 'page' means one side of a 216mm x 279mm (8.5" x 11") sheet of paper;
- 279mm x 432 mm (11" x 17") fold-out sheets (i.e. for spreadsheets and organization charts) will be counted as two pages;
- The order of the proposals should follow the order established in the Request for Proposal SRE section.

2.2 Specific Requirements for Proposal Format

The maximum number of pages (including text and graphics) to be submitted for the Rated Requirements under SRE 3.2 is fifty (50) pages.

The following are not part of the page limitation mentioned above:

- Covering letter;
- Cover page
- Tab/Dividers, provided they are free of text and/or graphics
- Consultant Team Identification (Appendix A);
- Declaration/Certifications Form (Appendix B);
- Integrity Provisions - Required Documentation;
- Front page of the RFP;
- Front page of revision(s) to the RFP;
- Price Proposal Form (Appendix C).

Consequence of non-compliance: any pages which extend beyond the above page limitation and any other attachments will be extracted from the proposal and will not be forwarded to the PWGSC Evaluation Board members for evaluation.

SRE 3 SUBMISSION REQUIREMENTS AND EVALUATION

3.1 MANDATORY REQUIREMENTS

Failure to meet the mandatory requirements will render the proposal as non-responsive and no further evaluation will be carried out.

3.1.1 Licensing, Certification or Authorization

The proponent shall be a licensed architect who will render the services of this Request for proposal in conjunction with the support of other discipline sub-consultants and/or in-house resources. All disciplines shall be licensed to provide the necessary professional services to the full extent that may be required by provincial requirements in the province of Ontario.

3.1.2 Consultant Team Identification

The Consultant team to be identified must include the following:

Proponent (Prime Consultant):

- Architect.

Key Sub-Consultants / Specialists:

- Project Manager;
- Mechanical Engineer;
- Electrical Engineer;
- Structural Engineer;
- Fire Protection and Life Safety Systems Engineer;
- Commissioning Manager (CxM);
- Specification Writer;
- Cost Estimating Specialist;
- Planning and Scheduling Specialist;
- Lab Specialist;
- Building Code Specialist;
- Risk Management Specialist;
- Sustainable Design Specialist/Sustainability Specialist;
- Building Envelope Specialist;
- Interior Designer and
- Site Representative During Construction.

Other Sub-Consultants as identified by the Prime Consultant.

Information required - name of firm, key personnel to be assigned to the project. For the Prime Consultant indicate current license and/or how you intend to meet the provincial or territorial licensing requirements. In the case of a joint venture identify the existing or proposed legal form of the joint venture (refer to R1410T General Instructions to Proponents, GI9 Limitation of Submissions).

An example of an acceptable format (typical) for submission of the team identification information is provided in Appendix A.

3.1.3 Declaration/Certifications Form

Proponents must complete, sign and submit the following:

- Appendix B, Declaration/Certifications Form as required.

3.1.4 Integrity Provisions – Required documentation

In accordance with the Ineligibility and Suspension Policy (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Proponent must provide, **as applicable**, to be given further consideration in the procurement process, the required documentation as per R1410T (2016-04-04), General instructions 1 (GI1), Integrity Provisions – Proposal, **section 3a**.

3.2 RATED REQUIREMENTS

3.2.1 Achievements of Proponent on Laboratory Projects

Describe the Proponent's accomplishments, achievements and experience as Prime Consultant on projects.

Select a **maximum** of 3 laboratory projects, of comparable size and complexity than the present project, that were successfully completed within the last 6 years. These projects should be functional and occupied for at least one (1) year. Joint venture submissions are not to exceed the maximum number of projects. Only the first 3 projects listed in sequence will receive consideration and any others will receive none as though not included. Projects that were delivered through a Construction Management approach will be awarded higher consideration.

Information that should be supplied:

- How this project is comparable/relevant to the requested project;
- A brief project description, including a discussion of design philosophy / approach to meet the intent, design challenges and resolutions;
- Budget control and management - i.e. contract price & final construction cost - explain variation;
- Project schedule control and management - i.e. initial schedule and revised schedule - explain variation;
- Client references - name, address, phone and fax of client contact at working level - references may be checked;
- Names of key personnel responsible for project delivery;
- Awards received.

The Proponent (as defined in R1410T General Instructions to Proponents, GI2 Definitions) must possess the knowledge on the above projects. Past project experience from entities other than the Proponent will not be considered in the evaluation unless these entities form part of a joint venture Proponent.

Please indicate those projects which were carried out in joint venture and the responsibilities of each of the involved entities in each project.

3.2.2 Achievements of Key Sub-consultants and Specialists on Projects

Describe the accomplishments, achievements and experience either as Prime Consultant or in a sub-consultant capacity on projects. If the Proponent proposes to provide multidisciplinary services which might otherwise be performed by a sub-consultant, this should be reflected here.

Provide information for a maximum of three (3) laboratory projects for each of the following Key Sub-Consultants / Specialists:

- 1) Project Manager
- 2) Mechanical Engineer
- 3) Electrical Engineer
- 4) Commissioning Manager
- 5) Planning and Scheduling Specialist
- 6) Lab Specialist
- 7) Site Representative During Construction

Select laboratory projects of comparable size and complexity than the present project that were successfully completed within the last six (6) years. These projects should be functional and occupied for at least one (1) year. Only the first three (3) projects listed in sequence (per requested key sub-consultant or specialist) will receive consideration and any others will receive none as though not included. Projects that were delivered through a Construction Management approach will be awarded higher consideration.

Information that should be supplied for each project:

- How this project is comparable/relevant to the requested project;
- A brief project description, including a discussion of design philosophy / approach to meet the intent, design challenges and resolutions;
- Budget control and management - i.e. contract price & final construction cost - explain variation;
- Project schedule control and management - i.e. initial schedule and revised schedule - explain variation;
- Client references - name, address, phone and fax of client contact at working level - references may be checked;
- Names of key personnel responsible for project delivery;
- Awards received.

3.2.3 Achievements of Key Personnel on Projects

Describe the experience and performance of the key personnel for each discipline and specialist to be assigned to this project, as listed in the Consultant Team Identification

section, regardless of their past association with the current proponent firm. This is the opportunity to emphasize the strengths of the individuals on the team, to recognize their past responsibilities, commitments and achievements. Each senior key personnel should have a minimum of ten (10) years of experience in working with complex multi-disciplinary projects, and should be in good standing with their relevant associations and licensing bodies such as OAA, PEO, PMP, CIQS, CSC, ARIDO, RPP (Registered Professional Planner), MCIP (Member of Canadian Institute of Planners), CaGBC (Canada Green Building Council) etc.

Information that should be supplied for each key personnel:

- Professional accreditations;
- Accomplishments/achievements/awards;
- Relevant experience, expertise, number of years experience;
- Role, responsibility and degree of involvement of individual in past projects.

3.2.4 Understanding of the Project:

The proponent should demonstrate a good understanding of the goals of the project, the functional/technical requirements, the constraints and the issues that will shape the end product.

Information that should be supplied:

- A description of the main project goals and the Client User's functional and technical requirements;
- A description of the approach to deal with significant issues, challenges and constraints during the project;
- A review of the project schedule and cost information, with an assessment of risk elements that may affect the project;
- A description of the proposed philosophy and methodology to meet the intent of the project, PWGSC's policies and standards, and the Client User's vision and values.

3.2.5 Scope of Services:

The proponent should demonstrate the capability to perform the services, meet the project constraints and provide a plan of action.

Information that should be supplied:

- Scope of Services - detailed list of services;
- Work Plan - detailed breakdown of work tasks and deliverables;
- Project schedule - proposed major milestone schedule;

- Risk management strategy.

3.2.6 Management of Services:

The Proponent should describe how the services will be managed to ensure continuing and consistent control, production and communication efficiency, how the project team will be organized and how it will fit in the existing structure of the firms; and, how the project team will be managed. The Proponent is to identify sub-consultant disciplines and specialists required to complete the Consultant team.

If the Proponent proposes to provide multi-disciplinary services which might otherwise be performed by a sub-consultant, this should be reflected here.

Information that should be supplied:

- The makeup of the full project team, including the names and roles of the sub-consultants and specialists on the project;
- An organization chart, with position titles and names of the project team and reporting relationships;
- Joint Venture business plan, team structure and responsibilities, if applicable;
- Profiles of the key positions with a description of their responsibilities on the project, and availability of back-up personnel;
- The project implementation strategies, to provide consistent continuing control and production efficiency;
- A description of the communication strategies;
- How the response time requirements will be met.

3.2.7 Design Philosophy / Approach / Methodology

The proponent should elaborate on particular aspects of the project to illustrate the design philosophy, approach and methodology. This is the opportunity for the proponent to state the overall design philosophy of the team as well as their approach of resolving design issues, and in particular to focus on the unique aspects of the current project.

Information that should be supplied:

- Design Philosophy / Approach / Methodology;
- Describe the major challenges and how your approach will be applied to those particular challenges.

3.3 EVALUATION AND RATING

In the first instance, price envelopes will remain sealed and only the technical components of the proposals which are responsive will be reviewed, evaluated and rated by a PWGSC Evaluation Board in accordance with the following to establish Technical Ratings:

Criterion	Weight Factor	Rating	Weighted Rating
3.2.1 - Achievements of Proponent on Laboratory Projects	2.0	0 - 10	0 - 20
3.2.2 - Achievements of Key Sub-consultants / Specialists	1.0	0 - 10	0 - 10
3.2.3 - Achievements of Key Personnel on Projects	2.0	0 - 10	0 - 20
3.2.4 - Understanding of the Project	1.0	0 - 10	0 - 10
3.2.5 - Scope of Services	1.5	0 - 10	0 - 15
3.2.6 - Management of Services	1.5	0 - 10	0 - 15
3.2.7 - Design Philosophy / Approach / Methodology	1.0	0 - 10	0 - 10
Total Technical Rating	10.0		0 - 100

To be considered further, proponents **must** achieve a minimum Technical Rating of sixty (60) points out of the hundred (100) points available as specified above.

No further consideration will be given to proponents not achieving the pass mark of sixty (60) points.

Generic Evaluation Table

PWGSC Evaluation Board members will evaluate the strengths and weaknesses of the Proponent's response to the evaluation criteria and will rate each criterion with even numbers (0, 2, 4, 6, 8 or 10) using the generic evaluation table below:

	INADEQUATE	WEAK	ADEQUATE	FULLY SATISFACTORY	STRONG
0 point	2 points	4 points	6 points	8 points	10 points
Did not submit information which could be evaluated	Lacks complete or almost complete understanding of the requirements.	Has some understanding of the requirements but lacks adequate understanding in some areas of the requirements.	Demonstrates a good understanding of the requirements.	Demonstrates a very good understanding of the requirements.	Demonstrates an excellent understanding of the requirements.
	Weaknesses cannot be corrected	Generally doubtful that weaknesses can be corrected	Weaknesses can be corrected	No significant weaknesses	No apparent weaknesses
	Proponent do not possess qualifications and experience	Proponent lacks qualifications and experience	Proponent has an acceptable level of qualifications and experience	Proponent is qualified and experienced	Proponent is highly qualified and experienced
	Team proposed is not likely able to meet requirements	Team does not cover all components or overall experience is weak	Team covers most components and will likely meet requirements	Team covers all components - some members have worked successfully together	Strong team - has worked successfully together on comparable projects
	Sample projects not related to this requirement	Sample projects generally not related to this requirement	Sample projects generally related to this requirement	Sample projects directly related to this requirement	Leads in sample projects directly related to this requirement
	Extremely poor, insufficient to meet performance requirements	Little capability to meet performance requirements	Acceptable capability, should ensure adequate results	Satisfactory capability, should ensure effective results	Superior capability, should ensure very effective results

SRE 4 PRICE OF SERVICES

All price proposal envelopes corresponding to responsive proposals which have achieved the pass mark of sixty (60) points will be opened upon completion of the technical evaluation.

Price proposals will be evaluated on the basis of a Percentage Fee and a Fixed Fee. The Percentage Fee and Fixed Fee will be evaluated separately. The Evaluated Percentage Fee for Required, Additional and Specialized Services will be given a Price Score out of 15. The Evaluated Fixed Fee for Optional Services will be given a Price Score out of 5. The aggregate of the Percentage Fee and the Fixed Fee will form the Total Evaluated Fee.

An average price is determined by adding the Total Evaluated Fee of all the price proposals together and dividing the total by the number of price proposals being opened.

All price proposals with a Total Evaluated Fee greater than twenty-five percent (25%) above the average fee will be set aside and receive no further consideration.

The remaining price proposals are rated as follows:

1. The lowest Total Evaluated Percentage Fee for Required, Additional and Specialized Services receives a Price Rating/Maximum Score of 15;
2. The Total Evaluated Percentage Fee for Required, Additional and Specialized Services for other price proposals will receive a Price Rating for Percentage Fee based on the following formula:

$$\frac{\text{Lowest Total Evaluated Percentage Fee for Required Services}}{\text{Proponent's Total Evaluated Percentage Fee for Required Services, Additional Services and Specialized Services}} \times 15 \text{ points} = \text{Price Rating for Percentage Fee for Required, Additional and Specialized Services}$$

3. The lowest Total Evaluated Fixed Fee for Optional Services receives a Price Rating/Maximum Score of 5;
4. The Total Evaluated Fixed Fee for Optional Services for other price proposals will receive a Price Rating for Fixed Fee based on the following formula:

$$\frac{\text{Lowest Total Evaluated Fixed Fee for Optional Services}}{\text{Proponent's Total Evaluated Fixed Fee for Optional Services}} \times 5 \text{ points} = \text{Price Rating for Fixed Fees for Optional Services}$$

SRE 5 TOTAL SCORE

Total Scores will be established in accordance with the following:

Rating	Possible Range	% of Total Score	Score (Points)
Technical Rating	0 - 100	80	0 - 80
Price Rating – Percentage Fee	0 - 100	15	0 - 15
Price Rating – Fixed Fee for Optional Services	0 - 100	5	0 - 5
Total Score		100	0 - 100

The Proponent receiving the highest Total Score is the first entity that the Evaluation Board will recommend for the provision of the required services. In the case of a tie, the proponent submitting the lower Total Evaluated Fee for the services will be selected.

SRE 6 SUBMISSION REQUIREMENTS - CHECKLIST

The following list of documents and forms is provided with the intention of assisting the Proponent in ensuring a complete submission. The Proponent is responsible for meeting all submission requirements.

Please follow detailed instructions in R1410T General Instructions to Proponents, GI16 Submission of Proposal. Proponents may choose to introduce their submissions with a cover letter.

Team Identification	see typical format in Appendix A
Declaration/Certifications Form	completed and signed form in Appendix B
Integrity Provisions	Required documentation – as applicable in accordance with the Ineligibility and Suspension Policy (http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) and as per R1410T (2016-04-04), General instructions 1 (GI1), Integrity Provisions – Proposal, section 3a .
Integrity Provisions	Declaration of Convicted Offences – with its bid, as applicable in accordance with the Ineligibility and Suspension Policy (http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) and as per R1410T (2016-04-04), General instructions 1 (GI1), Integrity Provisions – Proposal, section 3b .
Proposal	one (1) original plus three (3) copies
Front page of RFP	
Front page(s) of any solicitation amendment	

In a separate envelope:

Price Proposal Form	one (1) completed and submitted in a separate envelope
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pwl041

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APPENDIX A

TEAM IDENTIFICATION FORMAT

APPENDIX A - TEAM IDENTIFICATION FORMAT

For details on this format, please see SRE in the Request for Proposal.

The Prime Consultant and other members of the Consultant Team shall be, or eligible to be, licensed, certified or otherwise authorized to provide the necessary professional services to the full extent that may be required by provincial or territorial law.

I. Prime Consultant (Proponent) - Architect :

Firm or Joint Venture Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....

II. Key Sub Consultants / Specialists:

Project Manager

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....

Mechanical Engineer

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....

Electrical Engineer

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....

APPENDIX A - TEAM IDENTIFICATION FORMAT (CONT'D)

Structural Engineer

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

Fire Protection and Life Safety Systems Engineer

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

Commissioning Manager (CxM)

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

Specification Writer

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

Cost Estimating Specialist

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

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APPENDIX A - TEAM IDENTIFICATION FORMAT (CONT'D)

Planning and Scheduling Specialist

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

Lab Specialist

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

Building Code Specialist

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

Risk Management Specialist

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

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APPENDIX A - TEAM IDENTIFICATION FORMAT (CONT'D)

Sustainable Design Specialist/Sustainability Specialist

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

Building Envelope Specialist

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

Interior Designer

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

Site Representative During Construction

Firm Name:

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....

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APPENDIX B

DECLARATION/CERTIFICATIONS FORM

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APPENDIX B - DECLARATION/CERTIFICATIONS FORM

Project Title:

Name of Proponent:

Street Address:

Mailing Address:

Telephone Number: ()

Fax Number: ()

E-Mail:

Procurement Business Number:

Type of Organization: _____ Sole Proprietorship _____ Partnership _____ Corporation _____ Joint Venture	Size of Organization: Number of Employees _____ Graduate Architects / Professional Engineers _____ Other Professionals _____ Technical Support _____ Other _____
--	--

APPENDIX B - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Remark to Contracting Authority: Insert the Federal Contractors Program for Employment Equity Certification for requirements made on behalf of a Department or Agency subject to the FCP, estimated at **\$1M and above**, Applicable Taxes included (consult Annex 5.1 of the Supply Manual).

Federal Contractors Program for Employment Equity - Certification

I, the Proponent, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a proposal non-responsive, or will declare a consultant in default, if a certification is found to be untrue, whether during the proposal evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Proponent's certifications. Failure to comply with any request or requirement imposed by Canada may render the proposal non-responsive or constitute a default under the contract.

For further information on the Federal Contractors Program for Employment Equity visit Employment and Social Development Canada (ESDC)-Labour's website.

Date: _____ (YY/MM/DD) (If left blank, the date will be deemed to be the bid closing date.)

Complete both A and B.

A. Check only one of the following:

- ☐ A1. The Proponent certifies having no work force in Canada.
- ☐ A2. The Proponent certifies being a public sector employer.
- ☐ A3. The Proponent certifies being a federally regulated employer being subject to the Employment Equity Act.
- ☐ A4. The Proponent certifies having a combined work force in Canada of less than 100 employees (combined work force includes: permanent full-time, permanent part-time and temporary employees [temporary employees only includes those who have worked 12 weeks or more during a calendar year and who are not full-time students]).
- ☐ A5. The Proponent has a combined work force in Canada of 100 or more employees; and

APPENDIX B - DECLARATION/CERTIFICATIONS FORM (CONT'D)

- () A5.1. The Proponent certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

- () A5.2. The Proponent certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

- () B1. The Proponent is not a Joint Venture.

OR

- () B2. The Proponent is a Joint Venture and each member of the Joint Venture must provide the Contracting Authority with a completed Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the General Instructions)

APPENDIX B - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Former Public Servant (FPS) - Certification

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

Definitions

For the purposes of this clause,

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

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

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

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

APPENDIX B - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Proponent a FPS in receipt of a pension?

YES () NO ()

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

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

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

Work Force Adjustment Directive

Is the Proponent a FPS who received a lump sum payment pursuant to the terms of a work force reduction program? YES () NO ()

If so, the Proponent must provide the following information:

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

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

APPENDIX B - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Name of Proponent:

DECLARATION:

I, the undersigned, being a principal of the proponent, hereby certify that the information given on this form and in the attached proposal is accurate to the best of my knowledge. If any proposal is submitted by a partnership or joint venture, then the following is required from each component entity.

..... name signature
..... title	
I have authority to bind the Corporation / Partnership / Sole Proprietorship / Joint Venture	
..... name signature
..... title	
I have authority to bind the Corporation / Partnership / Sole Proprietorship / Joint Venture	
..... name signature
..... title	
I have authority to bind the Corporation / Partnership / Sole Proprietorship / Joint Venture	

During proposal evaluation period, PWGSC contact will be with the following person:_____.

Telephone Number: () _____ Fax Number: () _____

E-mail: _____

This Appendix "B" should be completed and submitted with the proposal, but may be submitted afterwards as follows: if Appendix "B" is not completed and submitted with the proposal, the Contracting Authority will inform the Proponent of a time frame within which to provide the information. Failure to comply with the request of the Contracting Authority and to provide the certifications within the time frame provided will render the proposal non-responsive.

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APPENDIX C

PRICE PROPOSAL FORM

APPENDIX C - PRICE PROPOSAL FORM

INSTRUCTIONS: Complete this Price Proposal Form and submit in a **separate sealed envelope** with the Name of Proponent, Name of Project, PWGSC Solicitation Number, and the words "PRICE PROPOSAL FORM" typed on the outside of the envelope. Price Proposals are not to include Applicable Taxes.

PROPOSERS SHALL NOT ALTER THIS FORM

Project Title: _____

Name of Proponent: _____

The following will form part of the evaluation process:

REQUIRED, ADDITIONAL AND SPECIALIZED SERVICES

Percentage Fee (R1230D (2016-01-28), GC 5 - Terms of Payment – Architectural and/or Engineering Services)

REQUIRED, ADDITIONAL AND SPECIALIZED SERVICES

- RS 1 Analysis of Project Scope of Work
- RS 2 Design Concept
- RS 3 Design Development
- RS 4 Construction Documents
- RS 5 Tender Call, Bid Evaluation & Construction Contract Award
- RS 6 Construction and Contract Administration
- RS 7 Commissioning
- RS 8 Post-Construction Warranty Review

- AS 1 Project Time Planning, Scheduling and Control
- AS 2 Estimating and Cost Planning
- AS 3 Risk Management
- AS 4 Resident Services During Construction
- AS 5 Closure Report
- AS 6 Laboratory Move Coordination Advisory Services
- AS 7 Interior Design

APPENDIX C - PRICE PROPOSAL FORM (CONT'D)

- SS 1 Sustainable Design Specialist
 SS 2 IT / Telecommunications Specialist
 SS 3 Building Code Specialist
 SS 4 Commissioning Manager (CxM)

Firm Percentage Fee of _____ % **X**

Indicative Estimate of Construction Cost
 (Class D, excluding Applicable Taxes) \$18,660,000

**ESTIMATED TOTAL PERCENTAGE FEE FOR REQUIRED,
 ADDITIONAL AND SPECIALIZED SERVICES** \$ _____ ¹

The actual percentage fee for Required Services will recognize the variability of the Construction Cost Estimate as the project develops (refer to formula specified in GC 5.2 Fee Arrangement(s) for Services). Payments will be made as specified in GC 5.4 Payments for Services.

FIXED FEE (R1230D (2016-01-28), GC 5 - Terms of Payment – Architectural and/or Engineering Services)

OPTIONAL SERVICES

OS 1 Functional Programming (For Entire Facility) \$.....

OS 2 Functional Programming – Master Plan
 (For Entire Facility) \$.....

OS 3 Investigations and Reports \$.....

OS 4 Feasibility Report \$.....

OS 5 Design Concept – Master Plan \$.....

OS 6 Sustainability Strategies and Reports \$.....

TOTAL FIXED FEES FOR OPTIONAL SERVICES \$..... ²

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APPENDIX C - PRICE PROPOSAL FORM (CONT'D)

TOTAL COST OF SERVICES FOR PROPOSAL EVALUATION PURPOSES

**Total Evaluated Percentage Fee for Required,
Additional and Specialized Services** \$.....¹

Total Evaluated Fixed Fee for Optional Services \$.....²

Total Evaluated Fee \$.....⁽¹⁺²⁾

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APPENDIX C - PRICE PROPOSAL FORM (CONT'D)

The following will NOT form part of the evaluation process

The following hourly rates may be used for future contract amendments.

Canada may accept or reject any of the following Hourly Rates. Canada reserves the right to negotiate on these Hourly Rates.

Principal

Name	\$ per hour
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$
.....	\$

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APPENDIX C - PRICE PROPOSAL FORM (CONT'D)

Staff

Name / Position	\$ per hour
.....
.....
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END OF PRICE PROPOSAL FORM

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APPENDIX D – DOING BUSINESS WITH PUBLIC WORKS AND GOVERNMENT SERVICES CANADA (PWGSC)

(see attached)

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Amd. No. - N° de la modif.

File No. - N° du dossier

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APPENDIX E – EXISTING DOCUMENTATION

(see attached)



Public Works and
Government Services
Canada

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Services gouvernementaux
Canada

Canada



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Last updated: April 8, 2013

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Appendices

Appendix 'A'	Checklist for the Submission of Construction Documents
Appendix 'B'	Sample Addendum Format
Appendix 'C'	Sample Index for Drawings and Specifications
Appendix 'D'	User Manual on Directory Structure and Naming Conventions Standards for Construction Tender Documents on CDROM, dated May 2005
Appendix 'E'	Basic Reference Guide on Converting Construction Drawings into Portable Document Format (PDF), dated May 2005

SECTION 1 INTRODUCTION

This document must be used in conjunction with the Terms of Reference (TOR), as the two documents are complimentary. The TOR describes project-specific requirements while this document deals with information common to all projects. In case of a conflict between the two documents, the requirements of the TOR override this document.

SECTION 2 PWGSC NATIONAL CADD STANDARD

Drawings shall be in accordance with PWGSC National CADD Standards and Canadian Standards Association (CSA) B78.3.

Refer to:

<http://www.tpsgc-pwgsc.gc.ca/biens-property/cdao-cadd/index-eng.html>

The above link is subject to change. The Consultant shall check with the Project Manager to ensure that the link and related information are current and relevant with regards to PWGSC National CADD Standards.

SECTION 3 GUIDE TO PREPARATION OF CONSTRUCTION DOCUMENTS FOR PWGSC

1 Purpose

This document provides direction in the preparation of construction contract documents (namely specifications, drawings and addenda) for Public Works and Government Services Canada (PWGSC).

Drawings, specifications and addenda must be complete and clear, so that a contractor can prepare a bid without guesswork. Standard practice for the preparation of construction contract documents requires that:

- drawings are the graphic means of showing work to be done, as they depict shape, dimension, location, quantity of materials and relationship between building components.
- specifications are written descriptions of materials and construction processes in relation to quality, colour, pattern, performance and characteristics of materials, installation and quality of work requirements.
- Addenda are changes to the construction contract documents or tendering procedures, issued during the tendering process.

2 Principles of PWGSC Contract Documents

PWGSC's contract documents are based on common public procurement principles. PWGSC does not use Canadian Construction Document Committee (CCDC) documents.

The terms and conditions are prepared and issued by PWGSC as well as other related bidding and contractual documents. For information, the clauses are available on the following web site: <http://sacc.pwgsc.gc.ca/sacc/query-e.jsp>. Any questions should be directed to the Project Manager.

3 Quality Assurance

Consultants are required to undertake their own quality control process and must review, correct and coordinate (between disciplines) their documents before sending them to PWGSC.

SPECIFICATIONS

1 National Master Specification

The National Master Specification (NMS) is a master construction specification available in both official languages, which is divided into 48 Divisions and used for a wide range of construction and/or renovation projects. In preparing project specifications, the Consultant must use the current edition of the NMS in accordance with the "NMS User's Guide".

The Consultant retains overriding responsibility for content and shall edit, amend and supplement the NMS as deemed necessary to produce an appropriate project specification free from conflict and ambiguity.

2 Specification Organization

Narrowscope sections describing single units of work are preferred for more complex work, however, broadscope sections may be more suitable for less complex work. Use either the NMS 1/3 - 2/3 page format or the Construction Specifications Canada full-page format.

Start each Section on a new page and show Project Number, Section Title, Section Number and Page Number on each page. Specification date, project title, and consultant's name are not to be indicated.

3 Terminology

Use the term "Departmental Representative" instead of Engineer, PWGSC, Owner, Consultant or Architect. "Departmental Representative" means the person designated in the Contract, or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract, and includes a person, designated and authorized in writing by the Departmental Representative to the Contractor.

Notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to" or "equivalent to", "to be determined on site by "Departmental Representative", should not be indicated in the specifications as this promotes inaccurate and inflated bids. Specifications must permit bidders to calculate all quantities and bid accurately. If quantities are impossible to identify (i.e. cracks to be repaired) give an estimated quantity for bid purposes (unit prices). Ensure that the terminology used throughout the specifications is consistent and does not contradict the applicable standard construction contract documents.

4 Dimensions

Dimensions are to be in metric only (no dual dimensioning).

5 Standards

As references in the NMS may not be up to date, it is the responsibility of the consultant to ensure that the project specification uses the latest applicable edition of all references quoted. The following is a list of some of the Internet websites which provide the most current publications of standards for reference in the construction specification document.

- CSA standards: <http://www.csa.ca>
- CGSB standards: <http://www.pwgsc.gc.ca/cgsb>
- ANSI standards: <http://www.ansi.org>
- ASTM Standards: <http://www.astm.org>
- ULC standards: <http://www.ulc.ca>
- General reference of standards: <http://www.cssinfo.com>

The NMS website (<http://www.tpsgc-pwgsc.gc.ca/biens-property/ddn-nms/index-eng.html>) also links to other documents references in the NMS under its "Links" feature.

6 Specifying Materials

The practice of specifying actual brand names, model numbers, etc., is against departmental policy except for special circumstances. The method of specifying materials shall be by using recognized standards such as those produced by Canadian Gas Association (CGA), Canadian General Standards Board (CGSB), Canadian Standards Association (CSA), and Underwriters' Laboratories of Canada (ULC), or by trade associations such as Canadian Roofing Contractors' Association (CRCA) and Terrazzo, Tile, Marble Association of Canada (TTMAC). Canadian standards should be used wherever possible.

If the above method cannot be used and where no standards exist, specify by a non-restrictive, non-trade name "prescription" or "performance" specifications.

In exceptional or justifiable circumstances or if no standards exist and when a suitable non-restrictive, non-trade name "prescription" or "performance" specification cannot be developed, specify by trade name. Include all known materials acceptable for the purpose intended, and in the case of equipment, identify by type and model number.

Acceptable Materials: set up the paragraph format as follows:

Acceptable Materials:

1. ABC Co. Model [_____].
2. DEF Co. Model [_____].
3. GHI Co. Model [_____].

Alternative materials to those specified may be considered during the solicitation period, however, the onus will be on the Consultant to review and evaluate all requests for approval of alternative materials.

The term "Acceptable Manufacturers" should not be used, as this restricts competition and does not ensure the actual material or product will be acceptable. A list of words and phrases that should be avoided is included in the NMS User's Guide.

Sole Sourcing: Sole sourcing for materials and work can be used for proprietary systems (ie. fire alarm systems, EMCS systems). **Substantiation and/or justification will be required.**

Wording for the sole source of work should be in Part 1 as:

"Designated Contractor

- .1 Hire the services of [_____] to do the work of this section."

Wording for the sole source of EMCS systems should be in Part 1 as

"Designated Contractor

- .1 Hire the services of [_____] or its authorized representative to complete the work of all EMCS sections."

and in Part 2 as "Materials

- .1 There is an existing [_____] system presently installed in the building. All materials must be selected to ensure compatibility with the existing [_____] system.

Wording for the sole source of materials (ie. fire alarm systems) should be in Part 2 as:

"Acceptable materials

.1 The only acceptable materials are [] .”

Prior to including sole source materials and/or work, the Consultant should contact the Project Manager to obtain the approval for the sole sourcing.

7 Unit Prices

Unit prices are used where the quantity can only be estimated (eg. earth work) and the approval of the Project Manager must be sought in advance of their use.

Use the following wording:

[The work for this section] or [define the specific work if required, e.g. rock excavation] will be paid based on the actual quantities measured on site and the unit prices stated in the Bid and Acceptance Form.

In each applicable NMS section, replace paragraph title "Measurement for Payment" with "Unit Prices".

Sample of Unit Price Table:

The Unit Price Table designates the Work to which a Unit Price Arrangement applies.

- (a) The Price per Unit and the Estimated Total Price must be entered for each Item listed.
- (b) Work included in each item is as described in the referenced specification section.

Item	Specification Reference	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity	Price per Unit GST/HST extra	Estimated Total Price GST / HST extra
TOTAL ESTIMATED AMOUNT						
Transfer amount to subparagraph 1)(b) of BA03						

8 Cash Allowances

Construction contract documents should be complete and contain all of the requirements for the contractual work. Cash allowances are to be used only under exceptional circumstances (ie. utility companies, municipalities), where no other method of specifying is appropriate. Obtain approval from the Project Manager in advance to include cash allowances and then use "Section 01 21 00 - Allowances" of the NMS to specify the criteria.

9 Warranties

It is the practice of PWGSC to have a 12 month warranty and to avoid extending warranties for more than 24 months. When necessary to extend beyond the 12 month warranty period provided for in the General Conditions of the contract, use the following wording in Part 1 of the applicable technical sections, under the heading "Extended Warranty":

- "For the work of this Section [], the 12 month warranty period is extended to 24 months.
- Where the extended warranty is intended to apply to a particular part of a specification section modify the above as follows: "For [] the 12 month ... [] months."

Delete all references to manufacturers' guarantees.

10 Scope of Work

No paragraphs noted as "Scope of Work" are to be included.

11 Summary and Section Includes in Part -1 General of Section

Do not use "Summary" and "Section Includes."

12 Related Sections

In every section of the specification at 1.1 "Related Sections": coordinate the list of related sections and appendices. Ensure co-ordination among the sections of the specification and ensure not to reference any section or appendices which do not exist.

13 Index

List all the plans and specification sections with correct number of pages, section names and correct drawing titles in the format shown in Appendix A.

14 Regional Guide

The Consultant should contact the Project Manager to obtain the region's requirements for Division 01 or other short form specifications as might be appropriate. For example, it is required in the National Capital Region that regional Section 01 00 10 - General Instructions be used on all projects.

15 Health and Safety

It is required that all project specifications include "Section 01 35 29.06 - Health and Safety Requirements." Confirm with the Project Manager to determine if there are any instructions to meet regional requirements.

16 Designated Substances Report

Include "Section 01 14 25 - Designated Substances Report"

17 Subsurface Investigation Reports

Subsurface Investigation Report(s) are to be included after Section 31 and the following paragraph should be added to Section 31:

Subsurface investigation report(s)

.1 Subsurface investigation report(s) are included in the specification following this section.

When the Project Manager determines that it is not practical to include the subsurface investigation report(s), alternate instructions will be provided.

Where tender documents are to be issued in both official languages, the subsurface investigation report(s) shall be issued in both languages.

In addition to the provision of the Subsurface Investigation Report, the foundation information required by the National Building Code of Canada 2005 (Division C, Part 2, 2.2.4.6) shall be included on foundation drawings.

18 Experience and Qualifications

Remove experience and qualification requirements from specification sections.

19 Prequalification and Pre-award submissions

Do not include in the specification any mandatory contractor and/or subcontractor prequalification or pre-award submission requirements that could become a contract award condition. If a prequalification process or a pre-award submission is required, contact the Project Manager.

There should be no references to certificates, transcripts or license numbers of a trade or subcontractor being included with the bid.

20 Contracting Issues

Specifications describe the workmanship and quality of the work. Contracting issues should not appear in the specifications. Division 00 of the NMS is not used for PWGSC projects.

Remove all references within the specifications, to the following:

- General Instructions to Bidders
- General Conditions
- CCDC documents
- Priority of documents
- Security clauses
- Terms of payment or holdback
- Tendering process
- Bonding requirements
- Insurance requirements
- Alternative and separate pricing
- Site visit (Mandatory or Optional)
- Release of Lien and deficiency holdbacks

DRAWINGS

1 Title Blocks

Use PWGSC title block for drawings and sketches (including addenda).

2 Dimensions

Dimensions are to be in metric only (no dual dimensioning).

3 Trade Names

Trade names on drawings are not acceptable. Refer to SECTION 3, SPECIFICATIONS, 6.0 Specifying Materials for specifying materials by trade name.

4 Specification Notes

No specification type notes are to appear on any drawing.

5 Terminology

Use the term "Departmental Representative" instead of Engineer, PWGSC, Owner, Consultant or Architect. "Departmental Representative" means the person designated in the Contract, or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract, and includes a person, designated and authorized in writing by the Departmental Representative to the Contractor.

Notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to" or "equivalent to", "to be determined on site by "Departmental Representative", should not be indicated in the specifications as this promotes inaccurate and inflated bids. Specifications must permit bidders to calculate all quantities and bid accurately. If quantities are impossible to identify (i.e. cracks to be repaired) give an estimated quantity for bid purposes (unit prices). Ensure that the terminology used throughout the specifications is consistent and does not contradict the applicable standard construction contract documents.

6 Information to be included

Drawings should show the quantity and configuration of the project, the dimensions and details of how it is constructed. There should be no references to future work and no any information that will be changed by future addenda. The scope of work should be clearly detailed and elements not in contract should be eliminated or kept to an absolute minimum.

7 Drawing Numbers: Number drawings in sets according to the type of drawing and the discipline involved as follows (The requirements of SECTION 2 PWGSC NATIONAL CADD STANDARD will supercede these requirements, where warranted).

During the Design Phase of the project each submission and review must be noted on the Notes block of the drawing title, but at the time of construction document preparation, all revision notes should be removed.

Discipline	Drawing
Demolition	D1, D2, etc.
Architectural	A1, A2, etc.
Civil	C1, C2, etc.
Landscaping	L1, L2, etc.
Mechanical	M1, M2, etc.
Electrical	E1, E2, etc.
Structural	S1, S2, etc.
Interior Design	ID1, ID2, etc.

- 8 Presentation Requirements:** Present drawings in sets comprising the applicable demolition, architectural, structural, mechanical and electrical drawings in that order. All drawings should be of uniform standard size.
- 9 Prints:** Print with black lines on white paper. Blue prints are acceptable for document submissions at 33%, 66% and 99% stages. Confirm with Project Manager the size of prints to be provided for review purposes.
- 10 Binding:** Staple or otherwise bind prints into sets. Where presentations exceed 20 sheets, the drawings for each discipline may be bound separately for convenience and ease of handling.
- 11 Legends:** Provide a legend of symbols, abbreviations, references, etc., on the front sheet of each set of drawings or, in large sets of drawings, immediately after the title sheet and index sheets.
- 12 Schedules:** Where schedules occupy entire sheets, locate them next to the plan sheets or at the back of each set of drawings for convenient reference. *See CGSB 33-GP-7 Architectural Drawing Practices for schedule arrangements.*
- 13 North Points:** On all plans include a north point. Orient all plans in the same direction for easy cross-referencing. Wherever possible, lay out plans so that the north point is at the top of the sheet.
- 14 Drawing Symbols:** Follow generally accepted drawing conventions, understandable by the construction trades, and in accordance with PWGSC publications.

ADDENDA

1 Format

Prepare addenda using the format shown in Appendix B. No signature type information is to appear.

Every page of the addendum (including attachments) must be numbered consecutively. All pages must have the PWGSC project number and the appropriate addendum number. Sketches shall appear in the PWGSC format, stamped and signed.

No Consultant information (name, address, phone #, consultant project # etc.) should appear in the addendum or its attachments (except on sketches).

2 Content

Each item should refer to an existing paragraph of the specification or note/detail on the drawings. The clarification style is not acceptable.

DOCUMENTATION

Translation

When required, all documentation included in the construction contract documents shall be in both official languages.

Ensure that English and French documents are equal in all respects. There can be no statement that one version takes precedence over the other.

Consultant shall provide:

- Per construction document submission, a completed and signed Checklist for the Submission of Construction Documents. See Appendix 'A'.
- Specification: originals printed one side on 216 mm x 280 mm white bond paper.
- Index: as per Appendix 'C'
- Addenda (if required): as per Appendix 'B' (to be issued by PWGSC).
- Drawings: reproducible originals, sealed and signed by the design authority.
- Tender information:
 - Including a description of all units and estimated quantities to be included in unit price table.
 - Including a list of significant trades including costs. PWGSC will then determine which trades, if any, will be tendered through the Bid Depository.
 - Government Electronic Tendering System (MERX): Consultants to provide an electronic true copy of the final documents (specifications and drawings) on one or multiple CD-ROM in Portable Document Format (PDF) without password protection and printing restrictions. The electronic copy of drawings and specifications is for bidding purposes only and do not require to be signed and sealed. See Appendix 'D' and Appendix 'E'.

PWGSC shall provide:

- General and Special Instructions to Bidders
- Bid and Acceptance Form
- Standard Construction Contract Documents

SECTION 4 CLASSES OF CONSTRUCTION COST ESTIMATES USED BY PWGSC

DESCRIPTION OF THE CLASSES OF ESTIMATES USED BY PWGSC FOR CONSTRUCTION COSTING OF BUILDINGS PROJECTS

Class 'D' (Indicative) Estimate:

Based upon a comprehensive statement of requirements, and an outline of potential solutions, this estimate is to provide an indication of the final project cost, and allow for ranking all the options being considered.

Submit Class D cost estimates in elemental cost analysis format latest edition issued by the Canadian Institute of Quantity Surveyors with cost per m² for current industry statistical data for the appropriate building type and location. Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.

The level of accuracy of a class D cost estimate shall be such that no more than a 20% contingency allowance is required.

Class 'C' Estimate:

Based on a comprehensive list of requirements and assumptions, including a full description of the preferred schematic design option, construction/design experience, and market conditions. This estimate must be sufficient for making the correct investment decision.

Submit Class C cost estimates in elemental cost analysis format latest edition issued by the Canadian Institute of Quantity Surveyors with cost per m² for current industry statistical data for the appropriate building type and location. Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.

The level of accuracy of a class C cost estimate shall be such that no more than a 15% contingency allowance is required.

Class 'B' (Substantive) Estimate:

Based on design development drawings and outline specifications, which include the design of all major systems and subsystems, as well as the results of all site/installation investigations. This estimate must provide for the establishment of realistic cost objectives and be sufficient to obtain effective project approval.

Submit Class B cost estimates in elemental cost analysis format latest edition issued by the Canadian Institute of Quantity Surveyors. Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.

The level of accuracy of a class B cost estimate shall be such that no more than a 10% design contingency allowance is required.

Class 'A' (Pre-Tender) Estimate:

Based on completed construction drawings and specifications prepared prior to calling competitive tenders. This estimate must be sufficient to allow a detailed reconciliation/negotiation with any contractor's tender.

Submit Class A cost estimates in both elemental cost analysis format and trade divisional format latest edition issued by the Canadian Institute of Quantity Surveyors. Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.

The level of accuracy of a class A cost estimate shall be such that no more than a 5% design contingency allowance is required.

SECTION 5 TIME MANAGEMENT

1 Time Management, Planning, and Control

The Time Management, Planning, and Control Specialist (scheduler) shall provide a Project Planning and Control System (Control System) for Planning, Scheduling, Progress Monitoring and Reporting and a Time Management, Planning, and Control Report (Progress Report). It is required that a fully qualified and experienced Scheduler play a major role in providing services in the development and monitoring of the project schedule.

The scheduler will follow good industry practices for schedule development and maintenance as recognized by the Project Management Institute (PMI).

PWGSC presently utilizes the Primavera Suite software and MicroSoft Project for its current Control Systems and any software used by the consultant should be fully integrated with these, using one of the many commercially available software packages.

1.1 Schedule Design

Project Schedules are used as a guide for execution of the project as well as to communicate to the project team when activities are to happen, based on network techniques using Critical Path Method (CPM).

When building a Control System you must consider:

1. The level of detail required for control and reporting;
2. The reporting cycle- monthly and what is identified in the Terms of Reference, but also includes Exception Reports;
3. That the duration must be in days;
4. What is required for reporting in the Project Teams Communications Plan and
5. The nomenclature and coding structure for naming and reporting requirements of activities, schedules and reports.

1.2 Schedule Development

For purposes of monitoring and reporting of project progress and ease of schedule review it is important to maintain a standard for all schedules and reports starting with the Work Breakdown Structure (WBS), identification of Milestones, naming of activities as well as schedule outputs and paper sizing and orientation.

Work Breakdown Structure

When developing the schedule the consultant needs to use PWGSC standards and practices. Two basic requirements are the National Project Management System

(NPMS) and a Work Breakdown Structure (WBS), structured supporting the NPMS (Levels 1-4).

The WBS is as follows:

- Level 1 Project Title (NPMS)
- Level 2 Project Stage (NPMS)
- Level 3 Project Phase (NPMS)
- Level 4 Processes to meet Deliverables/Control Points Milestones (NPMS)
- Level 5 Sub-Processes and Deliverables in support of Level 4
- Level 6 Discrete activities. (Work Package)

Not all the Stages, Phases and Processes in the NPMS will be required on all the projects, however the structure remains the same.

Major and Minor Milestones

The Major Milestones are standard Deliverables and Control Points within NPMS and are required in all schedule development. These Milestones will be used in Management Reporting within PWGSC as well as used for monitoring project progress using Variance Analysis. The Minor milestones are process deliverables (Level 4) or sub-process deliverables (level 5) also used in Variance Analysis.

Each Milestone will also be assigned appropriate coding for Status Reporting and Management Reporting.

Milestones must have zero duration and are used for measuring project progress.

Milestones may also be external constraints such as the completion of an activity, exterior to the project, affecting the project.

Activities

All activities will need to be developed based on Project Objectives, Project Scope , Major and Minor Milestones, meetings with the project team and the scheduler's full understanding of the project and it's processes.

Subdivide the elements down into smaller more manageable pieces that organize and define the total scope of work in Levels 5-6 that can be scheduled, costed, monitored and controlled. This process will develop the Activity List for the project.

Each activity is a discrete element of work and is the responsibility of one person to perform.

Each activity will describe the work to be performed using a verb and noun combination (i.e. Review Design Development Report).

Activities should not have durations longer than 2 update cycles, with exception of activities not yet defined in a "Rolling Wave".

Each activity will be assigned at WBS level 6 and appropriately coded for Status Reporting and Management Reporting.

These elements will become activities, interdependently linked in Project Schedules.

Project Logic

Once the WBS, Milestones and Activity List have been developed the activities and milestones can be linked in a logical manner starting with a Project Start Milestone. Every activity and milestone must be linked in a logical manner using either a Finish to Start (FS), Finish to Finish (FF), Start to Start (SS) or Start to Finish (SF) relationship. There can be no open-ended activities or milestones.

A Finish to Start (FS) is the preferred relationship.

When developing relationships avoid the use of lags and constraints in place of activities and logic.

Activity Duration

The activity duration (in days) is the estimated length of time it will take to accomplish a task.

Consideration needs to be taken in how many resources are needed and are available, to accomplish any activity. (Example: availability of Framers during a “Housing Boom”.) Other factors are the type or skill level of the available resources, available hours of work, weather etc.

There will be several types of lists and schedules produced from this process, which will form part of the Progress Report.

Activity List

An Activity List identifies all activities including milestones required to complete the whole project.

Milestone List

A Milestone List identifies all project Major and Minor milestones.

Master Schedule

A Master Schedule is a schedule used for reporting to management at WBS level 4 and 5 that identifies the major activities and milestones derived from the detailed schedule. Cash Flow projections can be assigned at WBS level 5 for monitoring the Spending Plan.

Detailed Project Schedule

A Detailed Project Schedule is a schedule in reasonable detail (down to WBS Level 6 and 7) for progress monitoring and control, this will ensure that the schedule shall be in sufficient detail to ensure adequate planning and control.

1.3 Schedule Review and Approval

Once the scheduler has identified and properly coded all the activities; put them into a logical order and then determined the appropriate durations. The scheduler can then analyze the schedule to see if the milestone dates meet the contractual requirements and then adjust the schedule accordingly by changing durations, resource leveling or changing logic.

When the schedule has been satisfactorily prepared the scheduler can present the detailed schedule to the Project Team for approval and be Baselined. There may be several iterations before the schedule meets with the Project Teams agreement and the contractual requirements.

The final agreed version must be copied and saved as the Baseline to monitor variances for reporting purposes.

1.4 Schedule Monitoring and Control

Once Baselined the schedule can be better monitored, controlled and reports can be produced.

Monitoring is performed by, comparing the baseline activities % complete and milestone dates to the actual and forecast dates to identify the variance and record any potential delays, outstanding issues and concerns and provide options for dealing with any serious planning and scheduling issues in report form.

Analyze and report from early start sequence on all activities due to start, underway, or finished for the complete project.

There will be several reports generated from the analysis of the baseline schedule and will form part of the Time Management Report in the Required Services Sections (RS)

Progress Reports

A Progress Report reflects the progress of each activity to the date of the report, any logic changes, both historic and planned, projections of progress and completion the actual start and finish dates of all activities being monitored.

The Progress Report includes:

A Narrative Report, detailing the work performed to date, comparing work progress to planned, and presenting current forecasts. This report should summarize the progress to date, explaining current and possible deviations and delays and the required actions to resolve delays and problems with respect to the Detail Schedule, and Critical Paths.

Narrative reporting begins with a statement on the general status of the project followed by a summarization of delays, potential problems and project status criticality, any

potential delays, outstanding issues and concerns and options for dealing with any serious planning and scheduling issues.

A Variance Report, with supporting schedule documentation, detailing the work performed to date, comparing work progress to planned. This report should summarize the progress to date, explaining all causes of deviations and delays and the required actions to resolve delays and problems with respect to the Detail Schedule, and Critical Paths.

A Criticality Report identifying all activities and milestones with negative, zero and up to five days Total Float used as a first sort for ready identification of the critical, or near critical paths through the entire project.

Included in the Progress Report as attachments are: WBS chart, Activity Lists, Milestone Lists, Master Schedules, Detailed Project Schedule

Exception Report

The Scheduler is to provide continuous monitoring and control, timely identification and early warning of all unforeseen or critical issues that affect or potentially affect the project.

If unforeseen or critical issues arise, the Scheduler will advise the Project Manager and submit proposed alternative solutions in the form of an Exception Report.

An Exception Report will include sufficient description and detail to clearly identify:

1. Scope Change: Identifying the nature, reason and total impact of all identified and potential project scope changes affecting the project.
2. Delays and accelerations: Identifying the nature, the reason and the total impact of all identified and potential duration variations.
3. Options Enabling a Return to the project baseline: Identifying the nature and potential effects of all identified options proposed to return the project within baselined duration.

1.5 Standard Submissions

At each submission or deliverable stage provide a complete and updated Progress Report, the contents of each report will vary with requirements and at each project phase. Typically a Progress Report has:

1. Executive Summary;
2. Narrative Report;
3. Variances Report;
4. Criticality Report;
5. Exception Report (as required)
6. Work Breakdown Structure Chart;
7. Activity List;
8. Milestone List;
9. Master Schedule with Cash Flow Projections;
10. Detail Project Schedule (Network Diagram or Bar Charts);

1.6 Schedule Outputs and Reporting Formats

The sheet sizing and orientation is more a suggestion that a role, changes to the paper format may vary to accommodate the information and column information required.

Progress Reports

Paper Size: Letter

Paper Format: Portrait

Title Format: Project Title; Report Type; Print Date; Data Date; Revision Block

Body Text: Narratives for each report to match other reports generated in the D.S.S.

Variance Report Columns: Activity ID, Activity Name, Planned Finish, Revised Finish, Variance, Activity % Complete,

Criticality Report Columns: Activity ID, Activity Name, Duration, Start, Finish, Activity % Complete, Total Float.

Exception Reports

Paper Size: Letter

Paper Format: Portrait

Title Format: Project Title; Report Type; Print Date; Data Date; Revision

Body Text: Narrative to match other reports generated in the D.S.S.

Paper Size: Letter

Paper Format: Landscape

Title Format: Project Title; Report Type; Print Date; Data Date; Revision

Columns: Activity ID, Activity Name, Duration, Remaining Duration, Start, Finish, Total Float.

Work Breakdown Structure (indent tree):

Paper Size: Letter

Paper Format: Portrait

Columns: WBS Code, WBS Name, Duration, Cost estimate, start and finish dates.

Footer Format: Project Title; Report Type; Print Date; Data Date; Revision Block

Activity Lists

Paper Size: Letter

Paper Format: Portrait

Columns: Activity ID, Activity Name, Start, Finish, Predecessor, Successor.

Footer Format: Project Title; Report Type; Print Date; Data Date; Revision Block

Sort with Early Start, then Early Finish, then Activity ID and with the WBS.

Milestone Lists

Paper Size: Letter

Paper Format: Portrait

Footer Format: Project Title; Report Type; Print Date; Data Date; Revision Block
Columns: Activity ID, Activity Name, Start, Finish.

Sort with Early Start, then Early Finish, then Activity ID and without the WBS.

Master Schedule (Bar Chart)

Paper Size: 11X17
Paper Format: Landscape
Footer Format: Project Title; Report Type; Print Date; Data Date; Revision Block
Columns: Activity ID, Activity Name, Duration, Activity % Complete, Start, Finish,
Total Float.

Sort with Early Start, then Early Finish, then Activity ID and with the WBS.

Detailed Project Schedules (Bar Chart)

Paper Size: 11X17
Paper Format: Landscape
Footer Format: Project Title; Report Type; Print Date; Data Date; Revision Block
Columns: Activity ID, Activity Name, Duration, Activity % Complete, Start, Finish,
Total Float.

Sort with Early Start, then Early Finish, then Activity ID and with the WBS.

APPENDIX 'A' - Checklist for the Submission of Construction Documents to PWGSC

Last updated November 21, 2012

Date:		
Project Title:	Project Location:	
Project Number:	Contract Number:	
Consultant's Name:	PWGSC Project Manager:	
Review Stage:		
66%	99%	100%

Item	Verified by:	Comments:	Action by:
Specifications:			
1 National Master Specifications			
1a The current edition of the NMS has been used.			
1b Sections have been included for all work identified on drawings and sections edited.			
2 Specification Organization			
2a Either the NMS 1/3 - 2/3 page format or the Construction Specifications Canada full page format is used.			
2b Each Section starts on a new page and the Project Number, Section Title, Section Number and Page Number show on each page.			
2c Specification date and consultant's name are not indicated.			
3 Terminology			
3a The term Departmental Representative is used instead of Engineer, PWGSC, Owner, Consultant or Architect.			
3b Notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to", "equivalent to" and "to be determined on site by" are not used.			
4 Dimensions			
4a Dimensions are provided in metric only.			
5 Standards			
5a The latest edition of all references quoted is used.			

6 Specifications Materials			
6a The method of specifying materials uses recognized standards. Actual brand names and model numbers are not specified.			
6b Materials are specified using standards and performance criteria (if not, the correct form of acceptable materials has been used).			
6c Identify if non-restrictive, non-trade name "prescription" or "performance" specifications are used.			
6d Indicate if a list of acceptable materials have been used.			
6e The term "Acceptable Manufacturers" is not used.			
6f No sole sourcing has been used.			
6g If sole sourcing has been used, the correct wording has been used and a justification provided to RPCD for the sole sourced products.			
7 Unit Prices			
7a Unit prices are used only for work that is difficult to estimate.			
8 Cash Allowances			
8a Indicate if cash allowances have been used.			
9 Warranties			
9a Indicate if warranties extend more than a 12 or 24 months period.			
9b Manufacturers guarantees are not indicated.			
10 Scope of Work			
10 No paragraphs noted as "Scope of Work" are included.			
11 Summary and Section Includes			
11a In part 1 of section, paragraphs "Summary" and "Section Includes" are not used.			
12 Related Sections			
12a The list of related sections and appendices are coordinated.			
13 Index			
13a The index shows a complete list of plans and specification sections with the correct number of pages and correct drawing titles and section names.			
14 Regional Guide Specifications			
14a General Instructions is included (Section 01 00 10 in the NCA).			

15 Health and Safety			
15a Section 01 35 29.06 - Health and Safety Requirements is included.			
16 Designated Substances Report			
16 a Section 01 14 25 - Designated Substances Report is included.			
17 Subsurface Investigation Reports			
17a Subsurface Investigation Reports are included in Division 31.			
18 Experience and qualifications			
18a Experience and qualification requirements do not appear in the specification sections			
19 Pre-qualifications			
19a There are no mandatory contractor and/or subcontractor pre-qualification requirements or references to certificates, transcripts or license numbers of a trade or subcontractor being included in the bid.			
20 Contracting Issues			
20a Contracting issues do not appear in the specifications.			
20b Division 00 of the NMS is not used.			
21 Quality Issues			
21a There are no specification clauses with square brackets “[]” or lines “___” indicating that the document is incomplete or missing information.			

Item	Verified by:	Comments:	Action By:
Drawings:			
1 Title Blocks			
1a The PWGSC title block is used.			
2 Dimensions			
2a Dimensions are provided in metric only.			
3 Trade Names			
3a Trade names are not used.			
4 Specification Notes			
4a There is no specification type notes.			
5 Terminology			
5a The term Departmental Representative is used instead of Engineer, PWGSC, Owner,			

Consultant or Architect.			
5b Notations such as: “verify on site”, “as instructed”, “to match existing”, “example”, “equal to”, “equivalent to” and “to be determined on site by” are not used.			
6 Information to be included			
6a Architectural and Engineering Drawings have been stamped and signed by the design authority.			
6b The project quantity and configuration, dimensions and construction details are included.			
6c References to future work and elements not in contract do not appear or are kept to an absolute minimum and clearly marked.			

I confirm that the plans and specifications have been thoroughly reviewed and that the items listed above have been addressed or incorporated. I acknowledge and accept that by signing, I am certifying that all items noted above have been addressed.

Consultant's Representative: _____

Firm name: _____

Signature: _____ Date: _____

APPENDIX 'B' - Sample of Addendum

Last updated April 22, 2008

ADDENDUM No. _____

Project Number: _____

The following changes in the bid documents are effective immediately. This addendum will form part of the contract documents

DRAWINGS

SPEC NOTE: indicate drawing number and title, then list changes or indicate revision number and date, and re-issue drawing with addendum.

- 1 A1 Architectural
- .1

SPECIFICATIONS

SPEC NOTE: indicate section number and title.

- 1 Section 01 00 10 - General Instructions

SPEC NOTE: list all changes (i.e. delete, add or change) by article or paragraph

- .1 Delete article (xx) entirely.
 - .2 Refer to paragraph (xx.x) and change ...
- 2 Section 23 05 00 - Common Work Results - Mechanical
- .1 Add new article (x) as follows:

APPENDIX 'C' - Sample of Index

Last updated April 22, 2008

Project No: _____

Index
Page 1 of _____

DRAWINGS AND SPECIFICATIONS

DRAWINGS:

SPEC NOTE: List all Drawings by number and title.

C-1	Civil
L-1	Landscaping
A-1	Architectural
S-1	Structural
M-1	Mechanical
E-1	Electrical

SPECIFICATIONS:

SPEC NOTE: List all Divisions, Sections (by number and title) and number of pages.

<u>DIVISION</u>	<u>SECTION</u>	NO. OF PAGES
DIVISION 01	01 00 10 - General Instructions.....XX
	01 14 25 - Designated Substances Report.....XX
	01 35 30 - Health and Safety.....XX
DIVISION 23	23 xx xx	
DIVISION 26	26 xx xx	

APPENDIX 'D'

USER MANUAL ON DIRECTORY STRUCTURE AND NAMING CONVENTION STANDARDS FOR CONSTRUCTION TENDER DOCUMENTS ON CD ROM

Issued by:

Real Property Contracting Directorate

PWGSC

May 2005

Last Updated: June 3, 2008

Version 1.0

PREFACE

The Government of Canada (GoC) has committed to move towards an electronic environment for the majority of the services it offers. This covers the advertisement and distribution of contract opportunities, including construction solicitations. As a result, it is necessary to obtain a copy of construction drawings and specifications (in PDF format **without** password protection) on one or multiple CD-ROM to facilitate for the GoC the transfer of the construction drawings and specifications electronically to the Government Electronic Tendering System (GETS).

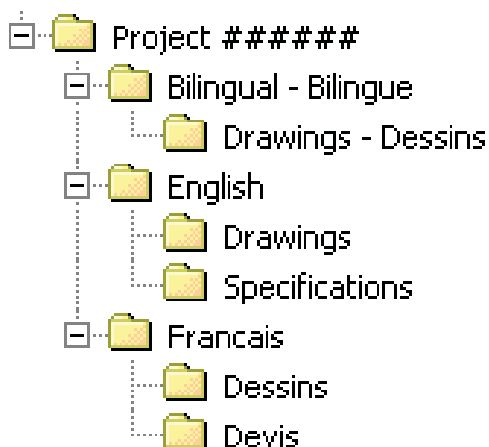
There is therefore a need to adopt a common directory structure and file-naming convention to ensure that the information made available to contractors electronically and in hard (printed) copy is in accordance with the sequence adopted in the real property industries, both for design and construction. This manual defines the standard to be followed by both consultants and print shops at time of formatting and organizing the information, whether drawings and specifications are created by scanning print documents or saved as PDF files from the native software (AutoCAD, NMS Edit, MS-Word, etc...) in which these were created.

It is important to note that the procedure described in this manual is not an indication that consultants are relieved from following the established standards for the production of drawings and specifications. The sole purpose of this manual is to provide a standard for the organization and naming of the electronic files that will be recorded on CD-ROM.

1. DIRECTORY STRUCTURE

1.1 1st, 2nd and 3rd Tier Sub-Folders

Each CD-ROM, whether it is for the original solicitation (tender call) or for an amendment (addendum), must have the applicable elements of the following high-level Directory Structure created:



The following important points are to be noted about the Directory Structure:

- The “*Project #####*” folder is considered the 1st Tier of the Directory Structure where *#####* represents each digit of the Project Number. The Project Number must always be used to name the 1st Tier folder and it is always required. Free text can be added following the Project Number, to include such things as a brief description or the project title;
- The “*Bilingual - Bilingue*”, “*English*” and “*Français*” folders are considered the 2nd Tier of the Directory Structure. The folders of the 2nd Tier **cannot** be given any other names since GETS uses these names for validation purposes. At least one of the “*Bilingual - Bilingue*”, “*English*” and “*Français*” folders is always required, and these must always have one of the applicable sub-folders of the 3rd Tier;
- The “*Drawings - Dessins*”, “*Drawings*”, “*Specifications*”, “*Dessins*” and “*Devis*” folders are considered the 3rd Tier of the Directory Structure. The folders of the 3rd Tier **cannot** be given any other names since GETS also uses these names for validation purposes. There must be always at least one of the applicable 3rd Tier folder in each document.

IMPORTANT:

The applicable elements of the Directory Structure (1st, 2nd and 3rd Tier folders) are always required and cannot be modified.

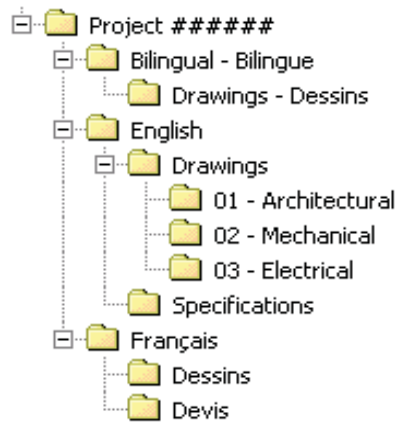
1.2 4th Tier Sub-Folders for Drawings

The “*Drawings – Dessins*”, “*Drawings*” and “*Dessins*” folders must have 4th Tier sub-folders created to reflect the various disciplines of the set of drawings.

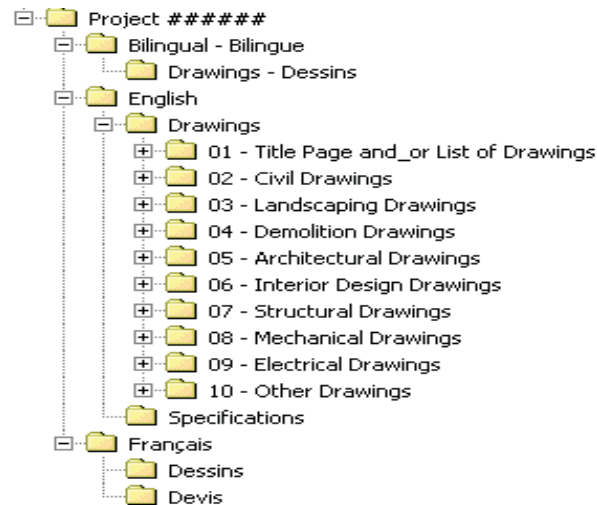
Because the order of appearance of the sub-folders on the screen will also determine the order of printing, it is necessary to start with a number the identification name of the sub-folders in the “Drawings – Dessins”, “Drawings” and “Dessins” folders.

Note: The first sub-folder must be always reserved for the Title Page and/or the List of Drawings unless the first drawing of the set is an actual numbered discipline drawing.

Examples of 4th Tier sub-folders for drawings:



or



1.2.1 Naming Convention

The 4th Tier sub-folders for drawings must adhere to the following standard naming convention.

For the “*Drawings*” and “*Dessins*” folders:

- Y

Where:

= A two digit number ranging from 01 to 99 (leading zeros must be included)

Y = The title of the folder

Example: 03 – Mechanical

For the “*Drawings - Dessins*” folder:

- Y - Z

Where:

= A two digit number ranging from 01 to 99 (leading zeros must be included)

Y = The English title of the folder

Z = The French title of the folder

Example: 04 - Electrical - Électricité

It should be noted that the numbering of the 4th Tier sub-folders is for sorting purposes only and is not tied to a specific discipline. For example, “*Architectural*” could be numbered 05 for a project where there is four other disciplines before “*Architectural*” in the set of drawings or 01 in another project where it’s the first discipline appearing in the set.

It is essential to ensure that the order of the drawings on the CD-ROM be exactly the same as in the hard copy set. GETS will sort each drawing for both screen display and printing as per the following rules:

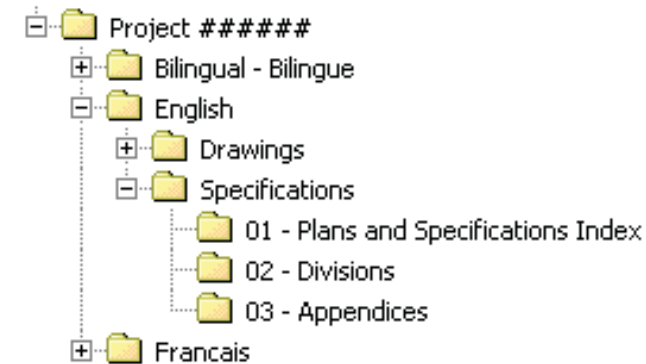
- The alphanumerical sorting is done on an ascending order;
- The alphanumerical order of the sub-folders determines the order of appearance on the screen as well as the order of printing (as an example: all the drawing PDF files in the 01 sub-folder will be printed in alphanumerical order before the drawings in the 02 sub-folder etc...);
- Each drawing PDF file within each sub-folder will also be sorted alphanumerically. This will determine the order of appearance on the screen as well as the order of printing (i.e. Drawing A001 will be printed before Drawing A002, Drawing M02 before Drawing M03, etc...).

1.3 4th Tier Sub-Folders for Specifications

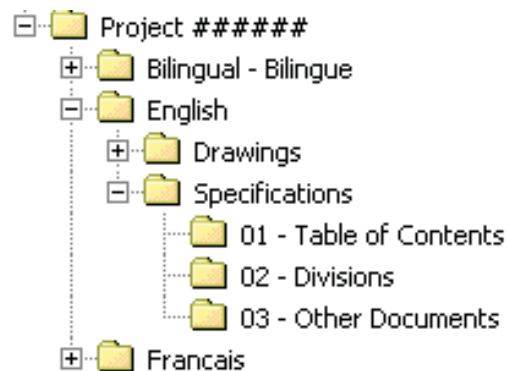
The “*Specifications*” and “*Devis*” folders must have 4th Tier sub-folders created to reflect the various elements of the specifications.

Because the order of appearance of the sub-folders on the screen will also determine the order of printing, it is necessary to start with a number the identification name of the sub-folders in the “Specifications” and “Devis” folders.

Examples of 4th Tier sub-folders for specifications:



or



1.3.1 Naming Convention

The 4th Tier sub-folders for specifications must adhere to the following standard naming convention.

For the “Specifications” and “Devis” folders:

- Y

Where:

= A two digit number ranging from 01 to 99 (leading zeros must be included)

Y = The title of the folder

Example: 02 – Divisions

It should be noted that the numbering of the 4th Tier sub-folders is for sorting purposes only and is not tied to an element of the specifications.

It is essential to ensure that the order of the elements of the specifications on the CD-ROM be exactly the same as in the hard copy. GETS will sort each element of the specifications for both

screen display and printing as per the following rules:

- The alphanumerical sorting is done on an ascending order;
- The alphanumerical order of the sub-folders determines the order of appearance on the screen as well as the order of printing (as an example: all the specifications PDF files in the 01 sub-folder will be printed, in alphanumerical order before the PDF files in the 02 sub-folder, etc...);
- Each specifications PDF file within each sub-folder will also be sorted alphanumerically. This will determine the order of appearance on the screen as well as the order of printing (i.e. Division 01 will be printed before Division 02, 01 - Appendix A before 02 - Appendix B, etc...).

2. NAMING CONVENTION FOR PDF FILES

Each drawing, specifications division or other document that are part of the tender documents must be converted in PDF format (without password protection) in accordance with the following standard naming convention and each PDF file must be located in the appropriate sub-folder of the Directory Structure.

2.1 Drawings

Each drawing must be a **separate single page** PDF file. The naming convention of each drawing must be:

X### - Y

Where:

X = The letter or letters from the drawing title block ("A" for Architectural or "ID" for Interior Design for example) associated with the discipline

= The drawing number from the drawing title block (one to three digits)

Y = **The drawing name from the drawing title block (for bilingual drawings, the name in both English and French is to appear)**

Example: A001 - First Floor Details

Each drawing that will be located in the appropriate discipline 4th Tier sub-folders must be named with the same letter ("A" for Architectural Drawings for example) and be numbered. The drawing number used to name the PDF file must match as much as possible the drawing number of the actual drawing (the exception being when leading zeros are required).

The following important points about drawings are to be noted:

- The drawing PDF files within each sub-folder are sorted alphanumerically for both displaying and printing. If there are more than 9 drawings in a particular discipline the numbering must use at least two numerical digits (i.e. A01 instead of A1) in order to avoid displaying drawing A10 between A1 and A2. The same rule applies when there are more than 99 drawings per discipline i.e. three digits instead of two must be used for the numbering (for example M003 instead of M03);

- If drawing PDF files are included in the “*Bilingual - Bilingue*” folder, these cannot be included as well in the “*English*” and/or “*Français*” folders;
- If drawings not associated with a particular discipline are not numbered (Title Page or List of Drawings for example), these will be sorted alphabetically. While this does not represent a problem if there is only one drawing in the sub-folder, it could disrupt the order when there are two or more drawings. If the alphabetical order of the drawings name does not represent the order on the hard copy set, the drawings are to be named as per the following standard convention when converted in PDF format to ensure proper display and printing order.

- Y

Where:

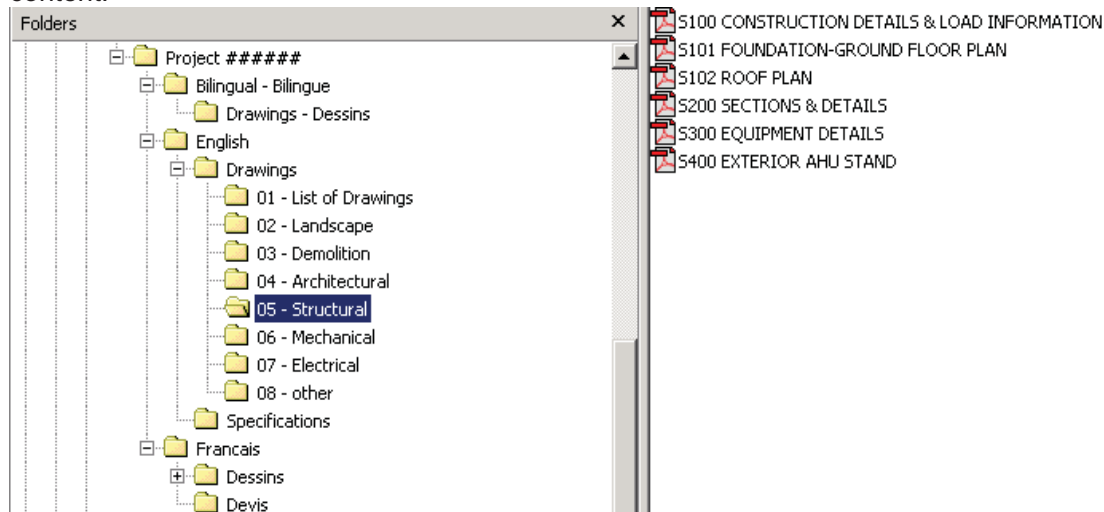
= A two digit number ranging from 01 to 99 (leading zeros must be included)

Y = The name of the drawing

Example: 01 - Title Page
02 - List of Drawings

If numbers are not used in the PDF files name, “*List of Drawings*” will be displayed before “*Title Page*” because “L” comes before “T” in the alphabet.

Example of a 4th Tier Drawings sub-folder's content:



2.2. Specifications

Each Specifications Division must be a separate PDF file and all pages contained in each PDF file must have the same physical size (height, width). The Plans and Specifications Index must

also be a separate PDF file. If there are other documents that are part of the Specifications (e.g. Appendix or other) these are to be separate PDF files as well.

2.2.1 Documents other than Specifications Divisions

Because PDF files within the Specifications sub-folders are sorted alphanumerically (in ascending order) for both on screen display and printing order, all files that appear in folders other than the “*Divisions*” sub-folder must be named using a number:

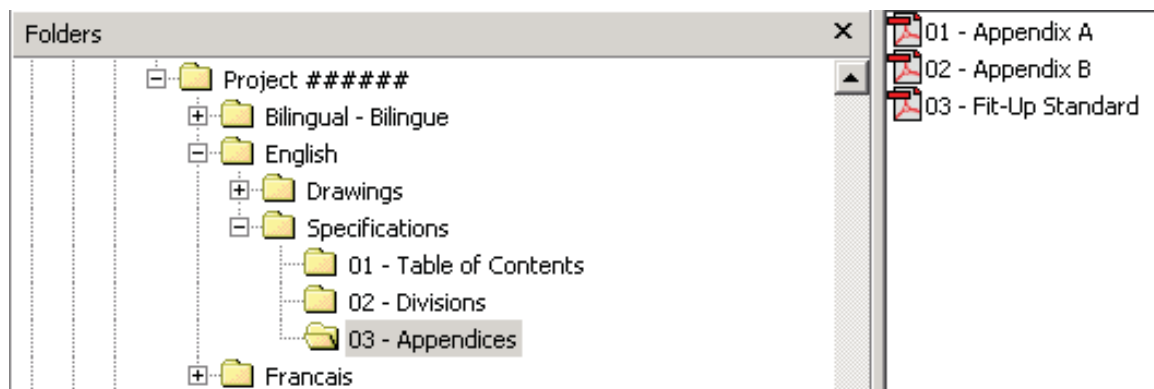
- Y

Where:

= Two digit number ranging from 01 to 99 with leading zeros required
Y = Name of the document

Example: 01 - Plans and Specifications Index

Example of a sub-folder content (sub-folder other than “*Divisions*”):



2.2.2 Specifications Divisions

The Specifications Divisions must be named as follows:

Division ## - Y

Where:

Division ## = The actual word “*Division*” followed by a space and a two digit number ranging from 01 to 99 (with leading zeros required)

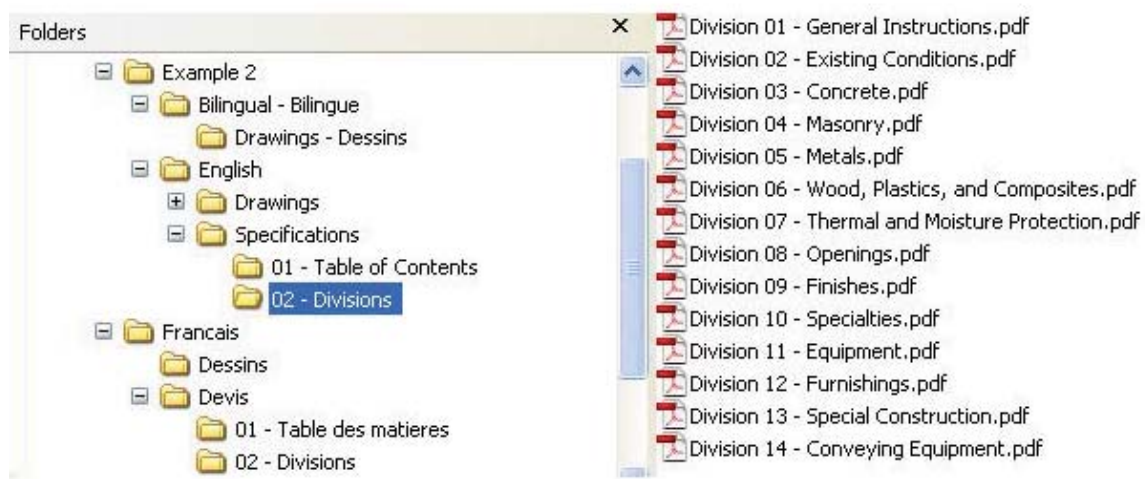
Y = Name of the Specifications Division as per **CSC/CSI MasterFormat™**

Example: Division 05 – Metals

The following important point about specifications is to be noted:

- The Numbering of the Divisions **cannot** be altered from **CSC/CSI MasterFormat™** even if some Divisions are not used in a given project. For example, Division 05 will always remain Division 05 even if Division 04 is not used for a given project.

Example of a “Divisions” sub-folder content:



3. CD-ROM LABEL

Each CD-ROM is to be labeled with the following information:

Project Number / Numéro de projet

Project Title / Titre du projet

Documents for Tender / Documents pour appel d'offres

CD X of/de X

Example:

Project 123456 / Projet 123456

Repair Alexandra Bridge / Réparation du pont Alexandra

Documents for Tender / Documents pour appel d'offres
CD 1 of/de 1

APPENDIX 'E'

BASIC REFERENCE GUIDE ON CONVERTING CONSTRUCTION DRAWINGS INTO PORTABLE DOCUMENT FORMAT (PDF)

Issued by:
Real Property Contracting Directorate
PWGSC

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Version 1.0

PREFACE

Portable Document Format (PDF) is the standard format for documents that are posted on the Government Electronic Tendering System (GETS). There is therefore a need to obtain from architectural and engineering consultants an electronic copy of drawings and specifications in PDF for tendering Government of Canada (GoC) construction projects.

In order to have the highest quality in term of resolution and printing, consultants should to the greatest extent possible have the PDF drawing and specification files derived from the native software in which they were created. Scanning is permissible but only in special circumstances, for example when there is no electronic version of a drawing being included in a construction tender package.

The purpose of this document is to provide basic information on the conversion of Computer Aided Design and Drafting (CADD) drawings in PDF. Creating a PDF file from a CADD drawing is a relatively simple process once all the necessary configurations and settings are in place. It actually should not take any longer than it would take to create a plot file or to send a drawing to a printer. The information in this guide is not intended to cover all technical aspects of the conversion, which can be done using various methods, but rather to highlight important points about the process and file settings. The conversion of specifications is not covered in this basic reference guide since it does not require any special configuration or setting.

The information provided in this basic reference guide is not an indication that consultants are relieved from following the established standards for the production of drawings and specifications. The sole purpose of this guide is to provide basic information on the PDF conversion process bearing in mind that additional detailed technical information is available from the various software manufacturers.

1. PRINTER DRIVERS

Adobe Acrobat provides two different printer drivers that are able to convert CADD drawing into PDF format, Acrobat PDF Writer and Acrobat Distiller. Before creating a PDF file from a CADD drawing, a choice must be made as to which one will be used.

Acrobat PDF Writer is a non-PostScript printer driver that works best with documents that don't contain complex graphics

Acrobat Distiller is a PostScript printer driver that works best with documents that contain PostScript fills, Encapsulated PostScript (EPS) graphics, or other complex elements.

It is recommended that Acrobat Distiller be used to create PDF file of architectural and engineering drawings due to their size and complex graphical nature.

2. PRINTER CONFIGURATION

Before converting a CADD drawing to PDF, an Acrobat printer configuration file for the PDF paper size needs to be created. This function can be done in the CADD software rather than using a custom paper size defined for the Acrobat distiller feature. The recommended method is to add a PostScript Adobe plotter in the CADD software and making the necessary setting in terms of media source and size, scale and orientation. The configuration can then be re-used to simplify the conversion process for future files that use the same page size.

As an alternative, although not recommended, a custom-defined size can be created in Acrobat Distiller in the *properties* menu.

3. CREATING PDF FILES

Once the printer configuration has been done in the CADD software, open up Acrobat Distiller and make the necessary settings in the *preferences* and *job options* sub-menu. Ensure that the page size match the sheet size selected in the CADD software to create the file. Particular settings can be saved under different names for future use.

With the Acrobat Distiller application open, ensure the required sheet size is displayed in the *job options* window. Then it is simply a matter of bringing the CADD file into the Acrobat Distiller creation box.

A progress bar will show during the conversion and the newly converted PDF file should open up and be displayed for verification.

4. PDF FILES SETTINGS

4.1 Security

Adobe Acrobat contains security features that can be used to secure the files by restricting any changes to the files. However, since the files will be posted on GETS and will be used for printing copies, the files **must not** be password protected and **must** allow printing.

4.2 Drawing Orientation

The final PDF drawing files must be displayed on the screen in the same direction that the users are intended to view them. This can be achieved by adjusting the setup of the plotter. If the drawing is not oriented properly after the conversion, it can be rotated manually within Adobe Acrobat.

4.3 Font Type

In order to avoid any problems during the conversion and to minimize the potential for font display errors, the fonts used for the production of construction drawings must be *PostScript* or *True Type fonts*.

4.4 Resolution

Since the PDF files will be used for printing, it is important that a proper resolution be selected. It is recommended to select 600 dots per inch (dpi).

4.5 Scale

When choosing the Plot scale in Adobe, it is important to choose the 1:1 scale to ensure the integrity of the scale from which the drawings were created in the CADD software.

5. SCANNING

Scanning is not recommended and should be done only when the drawing is not available electronically. When scanning a drawing, it is important that it be done in real size (scale 1:1) to ensure that the scale remains intact in subsequent printing. It is recommended that each scanned drawing be opened and verified to ensure that the resolution, scale and border are of an acceptable quality.

6. FINAL CHECKLIST

When the drawing file has gone through the PDF conversion, it is recommended to open it and verify the following:

- That the sheet size displayed is what was intended to be created (the size is viewable in the lower left corner of the drawing).
- That the orientation of the sheet is correct.
- That the line types, line weights and fonts match the CADD drawing.
- That the PDF file is in black and white.
- That each drawing is a single PDF file.
- That the PDF file is not password protected and printable.

If all the items are verified, the PDF file is useable

7. ADDITIONAL INFORMATION

For more information about the creation of PostScript and EPS files please refer to the User's Guide of the CADD software being used to produce the drawings. For more information about creating PDF file please refer to the Acrobat Distiller User's Guide and/or visit the Adobe Web site at www.adobe.com.