Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Public Works and Government Services Canada
100-167 Lombard
PO Box 1408
Winnipeg
Manitoba
R3B 0T6
Bid Fax: (204) 983-0338

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

Issuing Office - Bureau de distribution

Public Works and Government Services Canada
Northern Contaminated Site Program
ATB Place North Tower
10025 Jasper Avenue
Edmonton
Alberta
T5J 1S6

Title - Sujet
DEW Line Sites Monitoring ISR17

Solicitation No. - N° de l'invitation	Date
W6837-161004/A	2017-01-20

Client Reference No. - N° de référence du client
W6837-161004

GETS Reference No. - N° de référence de SEAG
PW-$NCS-080-10968

File No. - N° de dossier	CCC No./N° CCC - FMS No./N° VME
NCS-6-39312 (080)	

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM
on - le 2017-02-14

Time Zone
Fuseau horaire
Central Standard Time
CST

F.O.B. - F.A.B.
Plant-Usine: ☐ **Destination:** ☑ **Other-Autre:** ☐

Address Enquiries to: - Adresser toutes questions à:	Buyer Id - Id de l'acheteur
Almonte, Cathleen	ncs080

Telephone No. - N° de téléphone	FAX No. - N° de FAX
(204) 229-3862 ( )	( ) -

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:
DEPARTMENT OF NATIONAL DEFENCE
Inuvialuit Settlement
Inuvialuit
Northwest Territories
X0E 1C0
Canada

Instructions: See Herein

Instructions: Voir aux présentes

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

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
See Herein	

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**

Canada

DEW Line Sites Monitoring Program

TABLE OF CONTENTS

A. 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.

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 SUMMARY OF REQUIREMENT

Public Works and Government Services Canada (PWGSC) on behalf of Department of National Defence (DND) intends to retain consulting services for the collection of post-closure landfill long term monitoring (LTM) data for a total of 12 landfill sites and one drainage channel located at the following three former Distant Early Warning (DEW) Line Clean-Up Sites in the Inuvialuit Settlement Region (ISR) of the Yukon (YT) and the Northwest Territories (NT): BAR-2 Shingle Point, YT (4 landfill sites); PIN-M Cape Parry, NT (2 landfill sites); and PIN-1 Clinton Point, NT (6 landfill sites and 1 drainage channel) as more fully described in the Terms of Reference/Project Brief and terms and conditions. The period of the Contract is from 01 April 2017 to 31 March 2018 inclusive.

This procurement is subject to the Inuvialuit Final Agreement.

SI3 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 / Terms of Reference;

   (d) the document entitled "General Procedures and Standards";

(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.

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 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.

SI6 COMPREHENSIVE LAND CLAIM AGREEMENT - INUVIALUIT FINAL AGREEMENT

In this requirement, it is mandatory for Bidders to include the Aboriginal Opportunity Consideration (AOC) as part of their proposal (Reference Appendix F, Item A1 – Consultant's Inuvialuit Participation Plan).

This procurement is subject to the **Inuvialuit Final Agreement (IFA).**

Bidders requested to maximize Aboriginal employment, subcontracting and on-the-job training opportunities, and involve local, regional and Aboriginal citizens and businesses, in carrying out the work under this project.

The CLCA contains a provision requiring the inclusion of socio-economic bid criteria in the solicitation document, when practicable and consistent with sound procurement management principles, and subject to Canada's international trade agreement obligations. These socio-economic bid criteria are often referred to as Aboriginal Opportunity Considerations (AOC), and

bidders propose Aboriginal opportunities in their bid submission via a Consultant's Inuvialuit Participation Plan (CIPP).

The proposed requirement is subject to the Inuvialuit Final Agreement (IFA). The requirements of the Inuvialuit Final Agreement (IFA) will apply to this procurement. The provisions that apply are contained in: Section 16 - Economic Measures, of the Inuvialuit Final Agreement (IFA). http://www.inuvialuitland.com/resources/Inuvialuit_Final_Agreement.pdf

For purposes of interpretation:

"***Inuvialuit***" includes individual Inuvialuit, partnerships of Inuvialuit, any corporation or entity the majority of which is owned by Inuvialuit and ventures in which the Inuvialuit have an interest greater than 50%.

* "deliveries to" means "goods delivered to, and services performed in".

SI7 SET ASIDE / ABORIGINAL BUSINESS

SET-ASIDE UNDER THE PROCUREMENT STRATEGY FOR ABORIGINAL BUSINESS

This procurement is set aside under the federal government Procurement Strategy for Aboriginal Business. For more information on Aboriginal business requirements of the Set-aside Program for Aboriginal Business see Annex 9.4 of the *Supply Manual*.

This procurement is set aside from the international trade agreements under the provision each has for set-asides for small and minority businesses.

Further to Article 1802 of the Agreement on Internal Trade (AIT), AIT does not apply to this procurement.

SET-ASIDE FOR ABORIGINAL BUSINESS

Reference **Appendix G** – Procurement Strategy for Aboriginal Business

SI8 WCB AND SAFETY PROGRAM

1. The recommended Bidder shall provide to the Contracting Authority, prior to Contract award:
   1.1 a Workers' Safety and Compensation Claims Cost Summary - *Northwest Territories & Nunavut*, or equivalent documentation from another jurisdiction;
   1.2 a Workers' Safety and Compensation Commission letter of good standing, also listing covered Directors, Principals, Proprietor(s) or Partners who will be or who are anticipated to be present on the work site(s), or equivalent documentation from another jurisdiction; and
   1.3 a Certificate of Recognition (COR) or Registered Safety Plan (RSP). A health and safety policy and program, as required by other provincial/territorial Occupational Health and Safety Acts, will be acceptable in lieu of a COR or RSP.
2. The recommended Bidder shall deliver all of the above documents to the Contracting Authority on or before the date stated (usually 3-5 days after notification) by the Contracting Authority. Failure to comply with the request may result in the bid being declared non-compliant.

Exemption to Generic Safety Programs *(Northwest Territories & Nunavut Territory only)* - Contractors having ten (10) or less employees do not require a written program. However, evidence of a system to manage health and safety remains a requirement.

SI9 - 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

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

SI10 INTELLECTUAL PROPERTY

The Contractor must provide a non-exclusive, perpetual, world-wide, irrevocable licence to exercise all IP Rights that vest in the Contractor as provided in GC 1.20 thus allowing for the planning, designing and constructing or otherwise implementing any project other than the project identified as project number ISR17, DEW Line Sites Monitoring Program, Inuvialuit Settlement Region (ISR) of the Yukon (YT) and the Northwest Territories (NT). The cost of the licence is to be included in the contract price, therefore GC 1.20 Paragraph 6 has been revised accordingly.

B. TERMS, CONDITIONS AND CLAUSES

1. 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
   R1650D (2015-02-25), 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 CG1.12 (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 / Terms of Reference;
(d) the document entitled “General Procedures and Standards”;
(e) any amendment to the solicitation document incorporated in the Agreement before the date of the Agreement;
(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 / Terms of Reference;
   (h) the document entitled “General Procedures and Standards”;
   (i) the proposal.

2. SUPPLEMENTARY CONDITIONS (SC)

SC1 CHANGES TO CONTRACT DOCUMENTS

1. R1225D: Replace sub-paragraph 6, under GC 4 – Intellectual Property with the following:

   The *Consultant* hereby grants to *Canada* a non-exclusive, perpetual, world-wide, irrevocable licence to exercise all IP Rights that vest in the *Consultant* pursuant to paragraph 3 for the purpose of planning, designing and constructing or otherwise implementing any project other than the Project, and for any purpose set out in paragraph 5 as it relates to such other project. In the event that *Canada* exercises such IP Rights in another project, and provided that *Canada* does have equivalent rights under this contract, the *Consultant* agrees that the contract amount includes reasonable compensation having regard to *Canada's* contribution to the cost of development of the Foreground. The *Consultant* shall ensure that in any sale, assignment, transfer or licence of any of the IP Rights that vest in the *Consultant* under this contract, the purchaser, assignee, transferee or licensee agrees to be bound by the terms of this provision and to accept reasonable compensation as is contemplated herein. The *Consultant* shall also ensure that any such purchaser, assignee, transferee or licensee of the IP Rights is required to impose the same obligations on any subsequent purchaser, transferee, assignee or licensee.

SC2 SECURITY REQUIREMENT

There is no security requirement applicable to this Agreement.

SC3 TERM OF THE CONTRACT

1.0 Period of the Contract

The period of the Contract is from 01 April 2017 to 31 March 2018 inclusive.

SC4 REPLACEMENT OF SPECIFIC INDIVIDUALS

1. If specific individuals are identified in the Contract to perform the Work, the Contractor must provide the services of those individuals unless the Contractor is unable to do so for reasons beyond its control. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination for default.

2. If the Contractor is unable to provide the services of any specific individual identified in the Contract, it must provide a replacement with similar qualifications and experience. The replacement must have similar qualifications of the individual named in the proposal and be acceptable to Canada. The Contractor must, as soon as possible, give notice to the Contracting Authority of the reason for replacing the individual and provide:

    a. the name, qualifications and experience of the proposed replacement; and

    b. proof that the proposed replacement has the required security clearance granted by Canada, if applicable.

    The Contractor must not, in any event, allow performance of the Work by unauthorized replacement persons. The Contracting Authority may order that a replacement stop performing the Work. In such a case, the Contractor must immediately comply with the order and secure a further replacement in accordance with subsection 2. The fact that the Contracting Authority does not order that a replacement stop performing the Work does not relieve the Contractor from its responsibility to meet the requirements of the Contract.

SC5 WORKPLACE SAFETY AND HEALTH

1. EMPLOYER/PRINCIPAL CONTRACTOR

1.1 The Contractor shall, for the purposes of the Safety Act and General Safety Regulations, Northwest Territories & Nunavut Territory, and for the duration of the Work:

1.1.1 act as the Employer, where there is only one employer on the work site, in accordance with the Authority Having Jurisdiction;

1.1.2 assume the role of Principal Contractor, where there are two or more employers involved in work at the same time and space at the work site, in accordance with the Authority Having Jurisdiction; and

1.1.3 agree, in the event of two or more Contractors working at the same time and space at the work site, without limiting the General Conditions, to Canada's order * to:

1.1.3.1 assume, as the Principal Contractor, the responsibility for Canada's other Contractor(s); or

1.1.3.2 accept that Canada's other Contractor is Principal Contractor and conform to that Contractor's Site Specific Health and Safety Plan.

** "order" definition: after contract award, Contractor is ordered by a Change Order*

2. SUBMITTALS

2.1 The Contractor shall provide to Canada:

2.1.1 prior to the pre-construction meeting, a transmittal and copy of a completed Notice of Project form PWGSC - TPSGC 458 (form will be provided to the proposed contractor prior to award), as sent to the Authority Having Jurisdiction (AHJ); and

2.1.2 prior to commencement of work and without limiting the terms of the General Conditions:

2.1.2.1 copies of all other necessary permits, notifications and related documents as called for in the scope of work/specifications and/or by the AHJ; and

2.1.2.2 a site specific Health and Safety Plan as requested.

NOTE: Please do not include any forms that include personal 3rd party information such as the names of the contractor's employees and their related claims information.

3. LABOUR AUTHORITY CONTACT*:*

The contact below represents the Labour Authority in the jurisdiction (AHJ). They are not representatives of the Workers Compensation.

Do not contact the people referenced below for issues pertaining to WCB or WCB Clearances. Those queries must be directed specifically to the WCB, and where the WCB has both a Labour and Compensation component, WCB issues must be directed to the Compensation/Employer Services sections.

NORTHWEST TERRITORIES

Workers' Safety and Compensation
Northwest Territories and Nunavut
Prevention Services
Box 8888
Yellowknife, NT, X1A 2R3
Attention: Chief Industrial Safety Officer

Telephone: (867) 669-4418
Facsimile: (867) 873-0262

NUNAVUT

Workers' Safety and Compensation
Northwest Territories and Nunavut
Prevention Services
Box 8888
Yellowknife, NT, X1A 2R3
Attention: Chief Industrial Safety Officer

Telephone: (867) 669- 4403
Facsimile: (867) 873- 0262

DECLARATION

DATE: _____

COMPANY NAME: _____

ADDRESS: _____

_____

_____

This company is exempt from the Northwest Territories/Nunavut Safety Act and Regulations requirement to have a formalized Health and Safety Policy and Program, on the basis that this company does not at the present time employ more than ten (10) full time employees, including those required on all current projects for all clients. By signing this Declaration the Contractor certifies they will remain in compliance with the identified AHJ's requirements regarding health and safety at the work site.

Current number of full time employees: _____

_____
TITLE OF COMPANY OFFICER

_____
SIGNATURE

SC6 COMPREHENSIVE LAND CLAIM AGREEMENT – INUVIALUIT FINAL AGREEMENT

This procurement is subject to the Inuvialuit Final Agreement.

SC7 PROCUREMENT STRATEGY FOR ABORIGINAL BUSINESS

A3000C (2014-11-27) Aboriginal Business Certification

3. 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.

C. 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

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 75% =		Technical Score (Points)
Price Rating x 25%	=	Price Score (Points)
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 copy 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 for spreadsheets, organization charts etc. 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 28 pages.

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

- Covering letter
- Table of Contents
- 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 of the RFP) and Basis of Payment (Appendix C.1 of the RFP)
- Appendix F – Technical Evaluation
- Appendix G – Procurement Strategy for Aboriginal Business
- Inuvialuit Participation Plan and Annex N

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 DND 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. Reference **Appendix F – Technical Evaluation, Table A – Mandatory Requirements.**

3.2 RATED REQUIREMENTS

Reference **Appendix F – Technical Evaluation, Table B – Point Rated Requirements**.

3.3 STATUS AND AVAILABILITY OF RESOURCES

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

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon

request, provide a written confirmation, signed by the individual, of the permission given to the Bidder of his/her availability.

Failure to comply with these obligations, or failure to obtain Canada's approval for a substitution, may result in the bid being declared non-responsive or the contract terminated for default.

For greater certainty the Bidder recommended for award will be asked to confirm, within 2 business days from receipt of notification, that the team of Key Personnel proposed is available to perform the work. Subject to the above, if the personnel team proposed is not available **for reasons deemed within the bidders' control**, the bidder will be ineligible for award. The bidder ranked second will then be recommended for award and the same process will apply.

3.4 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 DND Evaluation Board in accordance with the following to establish Technical Ratings: Reference **Appendix F – Technical Evaluation.**

SRE 4 PRICE OF SERVICES

All price proposal envelopes corresponding to responsive proposals which have achieved the pass mark of 70 points will be opened upon completion of the technical evaluation. An average price is determined by adding all the price proposals together and dividing the total by the number of price proposals being opened.

All price proposals which are greater than twenty-five percent (25%) above the average price will be set aside and receive no further consideration.

The remaining price proposals are rated as follows:

A. The lowest price proposal receives a Price Rating of 100
B. The second, third, fourth and fifth lowest prices receive Price Ratings of 80, 60, 40, and 20 respectively. All other price proposals receive a Price Rating of 0.
C. On the rare occasions where two (or more) price proposals are identical, the matching price proposals receive the same rating and the corresponding number of following ratings are skipped.

The Price Rating is multiplied by the applicable percentage to establish the Price Score.

SRE 5 TOTAL SCORE

Reference **Appendix F – Technical Evaluation.**

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 provided 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 copy plus three (3) bound copies of the proposal
Supplemental Information Reference (SIR) – Bidder's Cross Reference and/or Response in Appendix F
PSAB Certification – completed and signed form provided in Appendix G.
Front page of RFP
Front page(s) of any solicitation amendment

In separate envelopes:

- □ Price Proposal Form (Appendix C of the RFP) and Basis of Payment (Appendix C.1 of the RFP) - one (1) completed and submitted in a separate envelope
- □ Consultant's Inuvialuit Participation Plan – one (1) original copy plus three (3) copies

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 – Senior Environmental Professional and/or Senior Geotechnical Engineer):

Firm or Joint Venture Name: .....
.....
.....

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

.....
.....
.....
.....
.....

II. Key Sub Consultants / Specialists:

Field Staff or other Key Sub-Consultants
Firm Name: .....
.....
.....

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

.....
.....
.....
.....
.....

APPENDIX B - DECLARATION/CERTIFICATIONS FORM

Project Title: **DEW Line Sites Monitoring Program – ISR17**

Name of Proponent: _____

Street Address: **Mailing Address:**

_____ _____
_____ _____
_____ _____
_____ _____

Telephone Number: (___) ___ - _____

Fax Number: (___) ___ - _____

E-Mail: _____

Procurement Business Number: _____

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

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.

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.

PROPONENTS SHALL NOT ALTER THIS FORM

Project Title: DEW Line Sites Monitoring Program ISR17

Name of Proponent:

The following will form part of the evaluation process:

REQUIRED SERVICES

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

Refer to and complete in full Appendix C.1 – Basis of Payment

APPENDIX C - PRICE PROPOSAL FORM (CONT'D)

THE FOLLOWING HOURLY RATES MAY BE USED FOR FUTURE CONTRACT AMENDMENTS

Principals

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

APPENDIX C - PRICE PROPOSAL FORM (CONT'D)

Staff

Name / Position	$ per hour
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
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.....	.....

END OF PRICE PROPOSAL FORM

APPENDIX D

General Procedures and Standards

Reference attached PDF document titled, “Appendix D”

APPENDIX E

Project Brief/Terms of Reference

Reference attached PDF document titled, “Appendix E” and corresponding Annexes.

NOTE: Annex S – Inuvialuit/DND DEW Line Agreement is posted in English only. Bidders are to notify the Contracting Authority listed herein if a French version is required. Requests must be received no later than 7 business days prior to the closing date identified on the front page of the Request for Proposal.

APPENDIX F

Technical Evaluation

Reference attached PDF document titled, “Appendix F”.

APPENDIX G

Procurement Strategy for Aboriginal Business

Reference attached PDF document titled, “Appendix G”

APPENDIX C.1 - BASIS OF PAYMENT

PRICE BREAKDOWN SCHEDULE:

W6837-16ISR17 - Contract Period: 01 April 2017 - 31 March 2018

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 4+5+6
Item	**Description**	**Unit**	**BAR-2**	**PIN-M**	**PIN-1**	**YEAR TOTAL ($)**
A-1	Inuvialuit Participation Plan/Reports	Fixed Fee	$_____	$_____	$_____	$_____
A-2	Health and Safety Plan (HASP)	Fixed Fee	$_____	$_____	$_____	$_____
A-3	Logistics & Work Plan	Fixed Fee	$_____	$_____	$_____	$_____
A-4	Field Work Progress Report	Fixed Fee	$_____	$_____	$_____	$_____
A-5	Field Work (including Disbursements)	Fixed Fee	$_____	$_____	$_____	$_____
A-6	Monitoring Report	Fixed Fee	$_____	$_____	$_____	$_____

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 6+9+12
Item	**Description**	**Unit**	**Est'd Qty**	**Unit Price**	**Extended Price**	**Est'd Qty**	**Unit Price**	**Extended Price**	**Est'd Qty**	**Unit Price**	**Extended Price**	**YEAR TOTAL ($)**
A-7	Field Stand-By*	Daily Upset Limit	2	$_____/ea	$_____							$_____
B-1	Soil Analyses - Inorganic Elements **	each	40	$_____/ea	$_____	11	$_____/ea	$_____	58	$_____/ea	$_____	$_____
B-2	Soil Analyses - PCBs **	each	40	$_____/ea	$_____	11	$_____/ea	$_____	58	$_____/ea	$_____	$_____
B-3	Soil Analyses - F1 - F4 **	each	40	$_____/ea	$_____	11	$_____/ea	$_____	58	$_____/ea	$_____	$_____
B-4	Water Analyses - Inorganic Elements **	each	14	$_____/ea	$_____	9	$_____/ea	$_____	12	$_____/ea	$_____	$_____
B-5	Water Analyses - PCBs **	each	14	$_____/ea	$_____	9	$_____/ea	$_____	12	$_____/ea	$_____	$_____
B-6	Water Analyses - F1-F4 **	each	14	$_____/ea	$_____	9	$_____/ea	$_____	12	$_____/ea	$_____	$_____
B-7	Water Analyses - F1 only	each										
	YEARLY TOTAL:		Total (All BAR-2 Items A-1 through B-7)		$_____	Total (All PIN-M Items A-1 through B-7)		$_____	Total (All PIN-1 Items A-1 through B-7)		$_____	$_____

Please note that for Items A-1 to A-6, project management costs are to be included in the fixed fee prices and should be reflected on the RAM.

*Total stand-by cost to be estimated based on 2 stand-by days a year for costing and bid evaluation purposes only, actual numbers may vary.

**Includes 10% duplicates for groundwater and soil, and 3 water QA/QC blanks per site for proposal estimations. Estimated number of samples used for costing and bid evaluation purposes only, actual number of samples may vary in the field.

Terms of Payment

All proponent invoices shall be clearly divided **by DEW Line site** to fulfill DND's requirement for reporting at the site level**.** The fixed fee and unit rates provided in the proposal **shall not** be exceeded. The following outlines the terms of payment for the different elements of the Price Breakdown Schedule.

Fixed Fee Items A-1 to A-7

1. **Fixed Fee Item A-1 – Inuit Participation Plans/Reports** will be payable annually upon acceptance of the quality of the final version of the annual report by the DND project manager. The reports must follow the requirements indicated within the terms of reference (TOR).

2. **Fixed Fee Item A-2 – Health and Safety Plan** will be payable annually upon acceptance of the quality of the final version of the annual plan by the DND project manager. The plan must follow the requirements indicated within the TOR, and be in line with best practices.

3. **Fixed Fee Item A-3 – Logistics & Work Plan** will be payable annually upon acceptance of the quality of the final version of the annual plan by the DND project manager. The plan must follow the requirements indicated within the TOR, and be in line with best practices.

4. **Fixed Fee Item A-4 – Field Work Progress Report** will be payable annually upon acceptance of the quality of the final version of the annual fieldwork progress report by the DND project manager. The report must follow the requirements indicated within the TOR.

5. **Fixed Fee Item A-5 – Field Work (including all time, fees, labour and disbursements with the exception of analytical)** will be payable upon acceptance of the quality of the Field Work Progress Report (item A-4) by the DND project manager and delivery of all laboratory certificates of analysis, field notes and other items listed in the TOR to the DND project manager.

6. **Fixed Fee Item A-6 – Site Monitoring Reports** will be payable annually upon submission, review and acceptance of the quality of the **final version** of the reports by the DND project manager. The draft and final reports must follow the requirements from the TOR, adhere to the work plan provided, and demonstrate that best practices were followed.

7. **Upset Limit Item A-7 – Field Stand-By** Should field stand-by occur due to unforeseen circumstances (e.g. weather), the contractor shall immediately seek the approval of the DND project manager to allow for contract amendment for stand-by. The consultant shall keep an accurate record and thoroughly document and report on the cause of the delays (e.g. written statement from the aviation company or pilot).

Terms of Payment

The contractor must demonstrate that appropriate measures were taken to minimize delays/stand-by to the extent possible. Stand-by costs attributable to the inability to mobilize or demobilize to/from a site will only be considered for the initial annual mobilization and final annual demobilization to/from a site. Emergency related stand-by will be considered on a case by case basis. Costs will be payable upon completion and acceptance of Fixed Fee item A-4 Field Work Progress Report by the DND project manager and approval by the DND project manager of the justification provided for field stand-by. Field stand-by will be paid on a time and materials basis (supported by a detailed breakdown and invoices) up to the upset limit provided in the proposal.

8. **Unit Prices <u>Items B-1 to B-7:</u>** Payment for the laboratory analysis of all samples will be by unit price, and the total sample quantities will be confirmed through a review of the laboratory certificates of analysis. Laboratory certificates of analysis must comply with the TOR.

Note that DND will not accept payment or liability for any additional work performed by the contractor over and above that authorized by the contract, unless the contractor receives written notification from DND that the work may proceed.

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada
Canada

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Serving GOVERNMENT, Serving CANADIANS.

GENERAL PROCEDURES & STANDARDS

For Professional & Design Services

MMXI Edition

www.pwgsc-tpsgc.gc.ca

Table of Contents:

1 INTRODUCTION

1.1 GENERAL PROCEDURES AND STANDARDS

1.1.1 GENERAL

.1 These PWGSC *General Procedures and Standards* (P&S) have been developed to:
- .1 Facilitate the development of a rational, well-documented design process; and
- .2 Ensure compliance with federal government standards, PWGSC Policies and Treasury Board directives.

1.1.2 HARMONIZATION WITH THE TERMS OF REFERENCE (TOR)

.1 The P&S document must be used in conjunction with the TOR, as the two documents are complimentary.

.2 The TOR describes project-specific requirements, services and deliverables while the GP&S document outlines with minimum standards and procedures common to all projects.

.3 In the case of a conflict between the two documents, the requirements of the TOR override this document.

1.2 PROJECT DELIVERY

1.2.1 GENERAL REQUIREMENTS

.1 The project delivery requirements outlined in this section are applicable to the design and construction of all PWGSC projects in Western Region, unless otherwise indicated in the TOR.

.2 Under the direction of the Consultant, the Consultant team shall provide fully integrated and coordinated professional and design services for the delivery of a project, in accordance with the requirements in the TOR and as contained herein.

.3 The Consultant must:
- .1 Obtain written authorization from the Departmental Representative before proceeding from one phase of work to the next phase of a project;
- .2 Coordinate all services with the Departmental Representative;
- .3 Deliver each project utilizing best practices in support of User Department needs, respecting the approved financial budget, schedule, scope, quality energy budget;
- .4 Establish a cohesive functional partnership and open communication between all members of the project delivery team throughout all phases of the project life;
- .5 Ensure that the Consultant team has an in-depth understanding and collective 'buy-in' of the project requirements, scope, budget and scheduling objectives, working constructively to build a collaborative and cooperative team approach with knowledgeable and timely input and contribution by all project team members, including representatives from PWGSC and the User Department;
- .6 Conduct rigorous quality assurance reviews during the design and construction phases, including the application of value engineering principles during the design of all complex systems;
- .7 Provide a written response to all PWGSC comments included in Quality Assurance reviews conducted throughout the design of the project;
- .8 If any alterations are required during the development of the design, analyse the impact on all project components and resubmit for approval before proceeding further;
- .9 Establish and maintain a change control procedure for scope changes;

.10 Ensure that an experienced Project Architect or Project Engineer is assigned to each project, who shall be responsible for the production, coordination and delivery of all design and construction documents for all project disciplines;
.11 Prepare a continuous risk identification and management program employing effective methodologies to ensure construction safety as well as claims avoidance;
.12 Provide continuous and comprehensive documentation of the project at all stages of the project implementation;
.13 Ensure continuity of key personnel and maintain a dedicated working team for the life of the project;

1.2.2 SERVICE DELIVERY FOR ALL PROJECTS

.1 For all projects, the Consultant shall:
  .1 Deliver the project to be within;
    .1 The established construction budget,
    .2 The key milestones, according to the established project schedule.
  .2 Ensure that each Consultant team member:
    .1 Understands the project requirements, for seamless delivery of the required services;
    .2 Functions as a cohesive partnership with open communication between all members of the project delivery team throughout all phases of the project life;
    .3 Function as an integrated and focused team with an in-depth understanding and collective 'buy-in' of the project requirements, scope, budget and scheduling objectives.
  .3 Provide;
    .1 Full co-ordination of services with other consultants engaged by PWGSC,
    .2 A continuous risk management program to address the risks associated specifically with this project, including construction safety and claims avoidance issues.
  .4 Deliver the work in a professional manner during all phases of the project, employing best practices for budget, schedule, quality, and scope management;
  .5 Maintain continuity of key personnel and maintain a dedicated working team for the life of the project.

1.2.3 SERVICE DELIVERY (BUILDINGS)

.1 For Building projects, where an Architectural firm is the Prime Consultants, the Consultant team shall, as a minimum, adhere to the standards of services outlined in the "Canadian Handbook of Practice for Architects - Volume 2 Management" (latest edition) distributed by the Royal Architectural Institute of Canada (RAIC).

1.2.4 SERVICE DELIVERY (ENGINEERING)

.1 For Engineering projects, where an Engineering firm is the Prime Consultants, the Consultant team shall adhere to the standards of services established by the Professional Engineering Association in the Province or Territories where the project is located.

1.3 PROCUREMENT OF GOODS AND SERVICES

1.3.1 PUBLIC PROCUREMENT

.1 Public procurement by Canada is legislated and guided by a number of international and national trade agreements, and acts, as well as policies, directives, and guidelines provided by the Treasury Board Secretariat (TBS) and PWGSC.

.2 There is one over-arching principle for all PWGSC procurement activities: Integrity. Subordinate to this are guiding principles, which provide the framework for PWGSC procurement process.

.3 For further information refer to the following web link;

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

1.3.2 INTEGRITY AND GUIDING PRINCIPLES

.1 PWGSC procurement processes will be open, fair and honest.

.2 Client Service:

.1 PWGSC will make every reasonable effort to satisfy the operational requirements of its clients, while obtaining the best value in each procurement process.

.3 National Objectives:

.1 PWGSC procurement activities will advance established government policies, within the limits imposed by international trade obligations.

.4 Competition:

.1 PWGSC procurement will be competitive, with specific exceptions.

.5 Equal Treatment:

.1 PWGSC must ensure that all potential bidders of a particular requirement are subject to the same conditions.

.6 Accountability:

.1 PWGSC is accountable for the integrity of the contracting process.

2 REQUIRED SERVICES STANDARDS

2.1 GENERAL

.1 Where Services are called for in the project specific TOR, the standards outlined in the following articles apply.

2.2 COST MANAGEMENT

2.2.1 GENERAL

.1 The following provides a general indication of the information needed by the Consultant's cost estimator to prepare specific classifications of estimates.

.2 These are the minimum requirements only and should be supplemented where additional information exists or is warranted.

.3 Construction cost estimates are to be prepared and submitted to PWGSC at various stages during the design process.

.4 In addition to the Consultants' estimate, PWGSC may have independent estimates performed to compare with the Consultant estimate.

2.2.2 TREASURY BOARD (TB) SUBMISSIONS

.1 Projects that are subject to TB approval are normally submitted twice.

- .1 The first submission is for Preliminary Project Approval (PPA) at Pre-Design or Schematic Design stage of a project and must include an Indicative Estimate for the cost of the work.
- .2 The second submission is for Effective Project Approval (EPA) at the completion of Design Development or Pre-Tender stage of a project and must include a Substantive Estimate for the cost of the work.

.2 The Treasury Board estimate definitions are:

- .1 Indicative Estimate;
  - .1 A low quality, order of magnitude estimate that is not sufficiently accurate to warrant TB approval as a Cost Objective.
- .2 Substantive Estimate;
  - .1 An estimate which is of sufficiently high quality and reliability as to warrant TB approval as a Cost Objective for the project phase under consideration.
  - .2 It is based on detailed systems and component design, taking into account all project objectives and deliverables.

.3 TB Terminology:

- .1 Constant dollar estimate;
  - .1 This is an estimate expressed in terms of the dollars of a particular base fiscal year.
    - .1 It includes no provision for inflation.
    - .2 Cash flows over a number of fiscal years may also be expressed in constant dollars of the base year including no allowance for inflation in the calculation of costs.
- .2 Budget-year (BY) dollar estimate:
  - .1 Budget year dollars is also be referred to as Nominal dollars or Current dollars.
    - .1 This is an estimate based on costs arising in each FY of the project schedule.
    - .2 It is escalated to account for inflation and other economic factors affecting the period covered by the estimate.
  - .2 The costs and benefits across all periods should initially be tabulated in budget year dollars for thee following reasons:

.1 First; this is the form in which financial data are usually available,
.2 Second; adjustments, such as tax adjustments, are accurately and easily made in budget year dollars,
.3 Finally; working in budget-year dollar enables the analyst to construct a realistic picture over time, taking into account changes in relative prices.

2.2.3 CLASSES OF ESTIMATES

.1 PWGSC applies a detailed, four level, classification using the terms Class A, B, C and D.
.2 Apply these estimate classifications at the project stages as defined in the TOR.
.3 For projects required to be submitted to TB for approval:
  .1 An Indicative Estimate shall be at least a class 'D'; and
  .2 A Substantive Estimate shall be at least a class 'B'.

2.2.4 CLASS 'D' (INDICATIVE) ESTIMATE

.1 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 of all the options being considered.
.2 Submit Class 'D' cost estimates in elemental analysis format, in accordance with the latest edition issued by the Canadian Institute of Quantity Surveyors, with cost per m^2 for current industry statistical data for the appropriate building type and location.
.3 Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.
.4 The level of accuracy of a class D cost estimate shall be such that no more than a 20% design contingency allowance is required.

2.2.5 CLASS 'C' ESTIMATE

.1 Based on a comprehensive list of requirements and assumptions, including a full description of the preferred Schematic Design option, construction experience, design experience and market conditions, this estimate must be sufficient for making the correct investment decision.
.2 Submit Class 'C' cost estimates in elemental analysis format, in accordance with the latest edition issued by the Canadian Institute of Quantity Surveyors, with cost per m^2 for current industry statistical data for the appropriate building type and location.
.3 Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.
.4 The level of accuracy of a class C cost estimate shall be such that no more than a 15% design contingency allowance is required.

2.2.6 CLASS 'B' (SUBSTANTIVE) ESTIMATE

.1 Based on design development drawings and outline specifications, which include the preliminary 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.
.2 Submit Class 'B' cost estimates in both elemental analysis format and trade divisional format, in accordance with the latest edition issued by the Canadian Institute of Quantity Surveyors.
.3 Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.
.4 The level of accuracy of a class 'B' cost estimate shall be such that no more than a 10% design contingency allowance is required.

2.2.7 CLASS 'A' (PRE-TENDER) ESTIMATE

.1 Based on completed construction drawings and specifications prepared prior to calling competitive tenders, this estimate must be sufficient to allow a detailed reconciliation and/or negotiation with any contractor's tender.
.2 Submit Class 'A' cost estimates in both elemental analysis format and trade divisional format, in accordance with the latest edition issued by the Canadian Institute of Quantity Surveyors.
.3 Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.
.4 The level of accuracy of a class 'A' cost estimate shall be such that no more than a 5% design contingency allowance is required.

2.3 SCHEDULE MANAGEMENT

2.3.1 SCHEDULER

.1 The Scheduler shall provide a Project Planning and Control Schedule for the project, for the purpose of Planning, Scheduling, Progress Monitoring (Time Management), during all the design phases up to the construction procurement phase.
.2 A qualified Scheduler, with experience commensurate with the complexity of the project, is required to develop and monitor the project schedule during the design process.
.3 The Scheduler shall adhere to good industry practices for schedule development and maintenance, as recognized by the Project Management Institute (PMI).
.4 PWGSC presently utilizes the Primavera Suite software and Microsoft Project for it's current Control Systems and any software used by the consultant should be fully integrated with either of these programs, using one of the many commercially available software packages.

2.3.2 PROJECT SCHEDULE

.1 A Detailed Project Schedule is a schedule developed in reasonable detail to ensure adequate Time Management planning and control of the project.
.2 Project Schedules are used as a guide for the planning, design and implementation phases 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).
.3 When building a Project Schedule, the Consultant must consider:
  .1 The level of detail required for control and reporting;
  .2 The reporting cycle shall be monthly, unless otherwise identified in the Terms of Reference;
  .3 What is required for reporting in the Project Teams Communications Plan; and
  .4 The nomenclature and coding structure for naming of scheduled activities, which must be submitted to the Project Manager for acceptance.

2.3.3 MILESTONES

.1 The Major Milestones are standard Deliverables and Control Points within NPMS and are required in all schedule development.
.2 These Milestones will be used in Time Management Reporting within PWGSC as well as used for monitoring project progress using Variance Analysis.
.3 Milestones may also be external constraints such as the completion of an activity, exterior to the project, affecting the project.

2.3.4 ACTIVITIES

.1 All activities will need to be developed based on:
  .1 Project Objectives;
  .2 Project Scope;

.3 Milestones;
.4 Meetings with the project team; and
.5 The scheduler's full understanding of the project and it's processes.

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

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

.4 These elements will become activities, interdependently linked in the Project Schedule.

2.3.5 SCHEDULE REVIEW AND APPROVAL

.1 Once the scheduler has identified and properly coded all the activities to the acceptance of the Project Manager, the activities are then sorted into a logical order and appropriate duration are applied to complete the schedule.

.2 The scheduler, together with the Project Team, can then analyze the schedule to see if the milestone dates meet the project timelines and then adjust the schedule accordingly by modifying durations or changing logic.

.3 When the schedule has been satisfactorily prepared, the scheduler can present the detailed schedule back to the Project Team for acceptance and application as the project baseline.

.4 There may be several iterations before the schedule meets with the Project Teams agreement and the critical project timelines.

.5 The final agreed version must be copied and saved as the baseline to monitor variances during the design process.

2.3.6 SCHEDULE MONITORING AND CONTROL

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

.2 Monitoring is performed by, comparing the baseline activities completed 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.

.3 There will be several schedules generated from the analysis of the baseline schedule as outlined in the Required Services Sections of the TOR.

.4 Each updated schedule reflects the progress of each activity to date, any logic changes, both historic and planned, projections of progress and completion indicating the actual start and finish dates of all activities being monitored.

.5 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 in accordance with the TOR.

.6 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.
.1 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.

.7 At each submission or deliverable stage, provide an updated schedule and exception report.

2.4 RISK MANAGEMENT

2.4.1 CONTEXT

.1 The Departmental Representative prepares the Risk Management Plan.

.2 The Departmental Representative may ask for assistance from the Consultant Team for identification of risk items and factors arising from the technical requirements of the project.

2.5 WASTE MANAGEMENT

2.5.1 PROTOCOL

.1 The Construction, Renovation, and Demolition (CRD) Non-hazardous Solid Waste Management Protocol to which PWGSC is bound, provides direction on the undertaking of non-hazardous solid waste management actions on projects.

.1 The protocol is designed to meet the federal requirements, provincial/territorial policies and the objectives of the PWGSC Sustainable Development Strategy (SDS).

.2 The contractor must implement a solid waste management program.

.3 Contractors must be instructed to plan for extra project time when implementing CRD waste diversion initiatives.

.1 Added labour costs can be recuperated and waste management costs savings can be achieved through reduced tipping fees, avoided haulage costs, and the sale of reusable and recyclable materials.

2.5.2 CONSULTANT RESPONSIBILITIES

.1 Research and investigate hazardous waste disposal strategies in context of the project and make recommendations.

.2 Include in the contract documents, a requirement for the contractor to develop a waste reduction and management plan during the construction of this project.

.3 Identify, on the site plan where large (garbage) bins shall be stored, as well as easy disposal truck access/exit to/from same, to assist the Contractor in reducing waste or re-cycling of materials on and off site.

2.6 TECHNICAL REPORTS

2.6.1 PURPOSE

.1 This section provides direction and standards for the preparation of reports delivered to PWGSC during all the various stages of project delivery and for specific services such as investigations, studies, analysis, strategies, audits, surveys, programs, plans, etc.

.2 Technical Reports are official government documents, which are typically used to support an application for approval or to obtain authorization or acceptance and as such they must:

.1 Be complete, clear and professional in appearance and organization, with proper reference to related parts and contents in the report;

.2 Clearly outline the intent, objectives, process, results and recommendations;

.3 Present the flow of information and conclusions in a logical, easy to follow sequence;

.4 Be in written narrative, graphic, model (traditional and / or computer generated), and photographic format, which can be web enabled;

.5 Ensure that all pages are numbered in sequence; and

.6 Be printed double-sided, if hard copies are produced.

2.6.2 STANDARDS FOR PWGSC TECHNICAL REPORTS

.1 Standard practice for the organization of technical reports requires:

.1 A cover page, clearly indicating the nature of the report, the date, the PWGSC reference number and who prepared the report;
.2 A Table of Contents;
.3 An Executive Summary;
.4 The body of the report is to be structured such that the reader can easily review the document and locate, respond to and /or reference related information contained elsewhere in the report;
.5 Appendices used for lengthy segments of the report, supplementary and supporting information and / or for separate related documents.

.2 The report content must:
.1 Ensure that the executive summary is a true condensed version of the report following the identical structure, including only key points and results / recommendations requiring review and / or approval;
.2 Use a proper numbering system (preferably legal numbering), for ease of reference and cross-reference;
.1 The use of 'bullets' is to be avoided.
.3 Use proper grammar, including using complete sentences, in order to ensure clarity, avoid ambiguity and facilitate easy translation into French, if required;
.1 The use of undefined technical terms, industry jargon and cryptic phrases are to be avoided.
.4 Be written as efficiently as possible, with only essential information included in the body of the report and supporting information in an appendix if needed.

2.6.3 PRE-DESIGN REPORT CONTENT

.1 Administrative aspects to be included (but not limited to) are:
.1 Quality management process for the consultant team;
.2 Confirmation that all necessary pre-design documentation required for this project is available and confirmation that the information is still current and up-to-date.

.2 Regulatory Analysis aspects to be included (but not limited to) are:
.1 Preliminary summary of regulatory and statutory requirements, authorities having jurisdiction, and codes, regulations, and standards.

.3 Program Analysis aspects to be included (but not limited to) are a review and analysis of:
.1 Functional program, User Department reports and studies, Space data sheets, Work stations, offices, common areas and commercial space requirements, Laboratories, Data Room requirements, etc.

.4 Site Analysis aspects to be included (but not limited to) are a review and analysis of:
.1 Site features and restrictions (i.e. landscape features, topographical feature, climatic influences, setback requirements, easements, existing buildings, and / or structures.);
.2 Subsurface, geotechnical analysis of soils;
.3 Municipal infrastructure, subsurface and above grade services, including capacities and limitations (i.e. storm water drainage, fire protection, domestic water, power, telecommunications,);
.4 Historical/archaeological features, previous uses;
.5 Environmental features including sustainable design opportunities.

.5 Building Analysis aspects to be included (but not limited to) are a review and analysis of:
.1 Substructure, including foundations and basement(s), parking;
.2 Shell, including superstructure, interior structural systems, exterior enclosure, roofing;
.3 Interiors, including interior construction, stairs, interior finishes;

.4 Services, including conveying (elevators, escalators), plumbing, HVAC, fire protection, electrical, telecommunications, building automation;
.5 Equipment and furnishings;
.6 Special construction and demolition, materials abatement.

.6 Budget, Schedule, and Risk Analysis aspects to be included (but not limited to) are:
.1 Updated Class 'D' estimate and revised schedule;
.2 Analysis of risk implications and preliminary mitigation strategies.

.7 Sustainable Development Strategies
.1 Proposed policy for the project to minimize environmental impacts consistent with the project objectives and economic constraints, including:
.1 Recommendations on Sustainable Development Design standards to be applied to the project;
.2 Achievable levels for LEED® or Green Globes certification;
.3 Preliminary sustainability targets for water and energy use, waste reduction etc.
.2 Environmental impacts and application of the Canadian Environmental Assessment (CEA) Act.

2.6.4 SCHEMATIC DESIGN REPORT CONTENT

.1 Standard practice for the organization of technical reports requires:
.1 Executive Summary;
.2 Regulatory Analysis;
.1 Preliminary building code analysis,
.2 Preliminary zoning analysis,
.3 Fire and life safety strategy, and
.4 Preliminary standards analysis.
.3 Program Analysis;
.1 Updated Functional Program requirements,
.2 Preliminary horizontal and vertical zoning diagrams,
.3 Spatial relationship diagrams,
.4 Facilities services strategy,
.5 Basic area calculations and analyses.
.4 Site Analysis;
.1 Drawings, renderings and supporting 3D visualization illustrating the building and site,
.2 Site features and restrictions (i.e. landscape features, topographical features, climatic influences, setback requirements, easements, existing buildings and/or structures etc.),
.3 Subsurface features,
.4 Municipal infrastructure, subsurface and above grade services, including capacities and limitations (i.e. storm water drainage, fire protection, domestic water, power, telecommunications etc.),
.5 Historical site features,
.6 Archaeological features,
.7 Environmental features including sustainable design strategies (i.e. storm water management, landscaping etc.).

.2 Building Analysis and Design Options;
.1 Architectural,

.1 Prepare a site plan indicating relationships, landscape concept, building outlines, main accesses, roadways, vehicular and pedestrian traffic patterns,
.2 Provide building plans, showing relative disposition of main accommodation areas, circulation patterns, floors, horizontal and vertical space relationships, mechanical / electrical shafts,
.3 Include elevations, sections and typical wall details for the building envelope,
.4 Provide perspectives and / or 3D visualization diagrams, and
.5 Calculate the gross building area and provide a net area summary of all accommodation areas required.

.2 Civil,
.1 Describe the overall impact on the site systems infrastructure,
.2 Verify of all site services information,
.3 Provide a site plan showing the existing building, proposed site services, building service connections, site drainage, roads, parking and sidewalks, and
.4 Include a preliminary analysis of the impact on existing systems, where contributing to existing sewer lines.

.3 Structural / Seismic,
.1 Describe the potential impact on the existing building structure and include any required structural modifications and /or upgrades,
.2 Provide a general description of structures, including systems considered and benefits/disadvantages,
.3 Include design loads for all load cases, and
.4 Prepare concept drawings of structural systems proposed, including typical floor plans, foundations, lateral systems and explanatory sketches.

.4 Mechanical Engineering,
.1 Provide narratives describing the following,
.1 Overview,
.2 Code & Standards Considerations & Concerns,
.3 Potential Energy Conservation Measures,
.4 Description of three distinct mechanical options including,
.1 Narratives of each option,
.2 Discussion of advantages and disadvantages of each,
.3 System schematics sufficient to describe each option,
.4 Preliminary energy analysis for each,
.5 Discussion of recommendations.

.5 Electrical Engineering,
.1 Provide an electrical design synopsis, describing the electrical work in sufficient detail for assessment and acceptance by the Departmental Representative,
.1 Include feasibility and economic studies of proposed systems complete with cost figures and loads, and in accordance with Sustainable Development requirements.
.2 Prepare a site plan showing the location of electrical and telecommunication service entrances.
.3 Prepare floor plans indicating locations and size of,
.1 Major electrical equipment and distribution centres,
.2 Telecommunications rooms, closets and major conduits,

.4 Provide Normal and Emergency power distribution details, including a diagram showing the distribution up to distribution centres on each floor,
.5 Indicate typical lighting concepts for the interior and exterior environments,
.6 Indicate typical ceiling (or floor) distribution systems for lighting, power and telecommunications, and
.7 Provide concept descriptions of Fire alarm and Security systems.

.3 Commissioning;
.1 Provide preliminary commissioning plan.
.4 Cost Management;
.5 Schedule Management;
.6 Furniture / Equipment;
.1 Prepare a Furniture Recommendation Report based on the Functional Program and on parameters developed in conjunction with the Departmental Representative and the Client / User. Report to include an examination of the following;
.1 Procurement process and requirements,
.2 Furniture type and layout,
.3 Panel screen height,
.4 Power requirements,
.5 Finishes.
.2 Recommendations are to take into consideration current inventory of furniture and reflect the client's vision, functional requirements, proposed planning alternatives, space allocation and project budget.
.3 Prepare a Class 'C' cost estimate for refurbishment of existing furniture and / or the purchase of new furniture and equipment.
.4 Document scheduling requirements for refurbishment of existing furniture and / or the procurement of new furniture and equipment.
.7 Budget;
.1 Class 'C' Estimates for each option.
.8 Schedule;
.1 Milestone project schedule including allowances for reviews and approvals for each stage of the project life cycle.
.9 Risk Analysis;
.1 Report on any deviations that may affect cost or schedule and recommend corrective measures.
.10 Sustainable Development Strategies;
.1 Indicate how each option can meet the sustainability targets, and
.2 Provide energy simulations of the proposed design options, including estimated annual energy cost as predicted by using current energy cost for the appropriate area.
.11 Response to PWGSC Quality Assurance Report ; and
.12 Project Log tracking all approved major decisions including those affecting changes to project scope, budget and schedule.

2.6.5 DESIGN DEVELOPMENT REPORT CONTENT

.1 Executive Summary
.2 Regulatory Analysis
.1 Preliminary building code analysis;

.2 Preliminary zoning analysis;
.3 Fire and life safety strategy;
.4 Preliminary standards analysis

.3 Program Analysis
.1 Updated Functional Program requirements
.2 Preliminary horizontal and vertical zoning diagrams;
.3 Facilities services strategy;
.4 Basic area calculations and analyses;

.4 Site Analysis
.1 Drawings, renderings and supporting 3D visualization illustrating the building and site,
.2 Site features and restrictions (i.e. landscape features, topographical features, climatic influences, setback requirements, easements, existing buildings and/or structures etc.);
.3 Subsurface features;
.4 Municipal infrastructure, subsurface and above grade services, including capacities and limitations (i.e. storm water drainage, fire protection, domestic water, power, telecommunications etc.);
.5 Historical site features;
.6 Archaeological features;
.7 Environmental features including sustainable design strategies (i.e. storm water management, landscaping etc.);

.5 Building Analysis and Design Options
.1 Architectural
.1 Prepare a site plan showing the building and Infrastructure items including the following:
.1 Pedestrian, vehicular, security, delivery service access,
.2 Provide floor plans of each level (including the roof) showing all accommodation required, including all necessary circulation areas, stairs, elevators, and ancillary spaces anticipated for service use. Indicate building grids, modules, and key dimensions.
.3 Provide reflected ceiling plans of ceilings with special features.
.4 Show elevations of all exterior building facades indicating all doors and windows, accurately sized and projected from the floor plans and sections.
.1 Clearly indicate levels for grade, all floors, ceilings, roof and penthouse levels.
.5 Develop cross-sections through the building to show floor levels, room heights, inner corridor elevations, etc.
.6 Identify primary architectural materials proposed for the exterior and interior of the building, including choice of finishes.
.7 Provide plans and preliminary details for millwork, built-in furniture and lab casework.
.8 Provide detail sections of walls with special design features requiring illustration and explanation at this stage, such as firewalls, acoustical barriers, security partitions, isolation or separation of laboratory spaces, etc.
.9 Special construction and demolition, including heritage conservation and rehabilitation requirements, hazardous materials abatement,
.10 Provide sections and details for any spaces requiring acoustic security.
.1 Include STC ratings for doors, transfer ducts and other assemblies
.2 Civil

.1 Further refine site plans showing site services and building service connections referenced to proposed building outlines, site access roads and sidewalks, including existing and proposed grades and drainage improvements.
.2 Indicate locations of manholes (complete with invert elevations), valves, and fire hydrant locations.
.3 Identify proposed pipe sizes and slopes, where applicable, and include pipe invert elevations at building foundation.
.4 Identify, by means of Design Summary Sheets, pipe capacity and estimated flows for storm and sanitary sewers. Where contributing to an existing sewer, include analysis of impact on existing systems.
.5 Provide Hydraulic Analysis of any relevant alterations to existing water distribution system in the vicinity of the proposed building to confirm anticipated maximum available fire flow. Calculate and compare site flows to building site fire flow.
.6 Provide typical trench and related details, including profiles of below grade services.

.3 Structural
.1 Provide drawings indicating modifications to existing structure and new structural systems, structural materials, cladding details, fireproofing methods and other significant or unusual details.
.2 Indicate all design loads, e.g. dead and live loads on all plans with atypical loads marked. Live loads to include localized seismic, wind and snow.
.3 Provide brief design calculations including outputs from computerized analysis.

.4 Mechanical
.1 Provide narratives describing the following
.1 Overview
.2 Code & Standards Analysis
.3 Site Services & Utilities
.4 Fire Protection Systems
.5 Plumbing Systems
.6 Heating Systems
.7 Cooling Systems
.8 Ventilation Systems
.9 Exhaust Systems
.10 Insulation
.11 Humidification Systems
.12 Acoustic and sound control measures
.13 Controls
.14 Energy Conservation Measures & Energy Analysis & Report
.2 Provide system schematics for heating water, chilled water, ventilation and plumbing systems.
.3 Provide catalogue cut sheets of representative equipment for each type of component to be used on the project.
.4 Provide preliminary layout drawings showing locations of all major components.
.5 Provide brief design calculations including outputs from computerized analysis.

.5 Electrical
.1 Update the electrical design synopsis for the selected option. Provide data on the total connected load, the maximum demand and diversity factors, and the sizing of the emergency load.

.2 Elaborate on proposed emergency power scheme and provide preliminary installation details for any emergency generator installation.
.3 Indicate metering locations on distribution diagram.
.4 Provide typical lighting, power and telecommunication system details for all workspaces.
.5 Include lighting design and control schemes for typical lighting arrangements.
.6 Elaborate on exterior lighting scheme. Provide typical fixture concepts.
.7 Provide a fire alarm riser diagram.
.8 Indicate security system major conduit requirements on floor plans.
.9 Provide typical security system details (conduit and boxes) that will be included on construction drawings.
.10 Provide brief design calculations including outputs from computerized analysis.

.6 Sustainable Development Strategies:
.1 Indicate how each option can meet the sustainability targets
.2 Provide energy simulations of the proposed design options, including estimated annual energy cost as predicted by using current energy cost for the appropriate area,

.7 Response to PWGSC Quality Assurance Report

2.7 CODES, ACTS, STANDARDS, REGULATIONS

2.7.1 GENERAL

.1 The Codes, Acts, Standards and Guidelines listed in the following articles, may apply to this project. The Consultant must identify and analyse the applicable documents in the Code Analysis.

.2 In all cases the most stringent Code, standard and guideline shall apply.

2.7.2 PWGSC DOCUMENTS AVAILABLE FROM PWGSC PROJECT MANAGER:

.1 PWGSC Fit-Up Standards: Technical Reference Manual;

.2 Public Works and Government Services MD Standards – Departmental Representative to provide on request;
.1 MD 15000; Environmental Standards for Office Accomodation,
.2 MD 15116-2006; Computer Room Air conditioning Systems,
.3 MD-15126; Laboratory HVAC (currently in draft form),
.4 MD 15128; Laboratory Fume Hoods: Guidelines for owners, design professionals and maintenance personnel – 2008,
.5 MD 15129; Guidelines for Perchloric Acid fumehoods and their exhaust systems – 2006,
.6 MD 15161; Control of Legionella in Mechanical Systems - 2006,
.7 MD 250005; Energy Monitoring and Control Systems Design Guidelines - 2009,

.3 PWGSC Best Practice; Prescribing indoor humidity levels for Federal Buildings - 2006,

.4 Public Works and Government Services Commissioning Standards and Guidelines,

.5 PWGSC Commissioning Manual CP-1 version 2006.

2.7.3 CODES AND REGULATIONS:

.1 The NRC National Building Code of Canada 2010;

.2 The NRC National Fire Code of Canada, 2010;

.3 The NRC National Plumbing Code of Canada 2010;

.4 The NRC Model National Energy Code for Buildings 2011;

.5 CSA C22.1-09, Canadian Electrical Code Part I Safety Standard for Electrical Installations and CE Code Handbook. Amendments for Provinces;

.6 Canadian Code for Preferred Packaging;
.7 National Electrical Manufacturers Association (NEMA);
.8 Electrical and Electronic Manufacturers' Association of Canada (EEMAC);
.9 American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE) - ANSI/IEEE C62.41-1991, Surge Voltages in Low-Voltage AC Power Circuits;
.10 American Society for Testing and Materials (ASTM);
.11 ASTM F 1137-00(2006), Specification for Phosphate/Oil and Phosphate/Organic Corrosion Protective Coatings for Fasteners;
.12 The Canada Labour Code;
.13 http://laws.justice.gc.ca/en/L-2/
.14 The Canada Occupational Health and Safety Regulations;
.15 http://laws.justice.gc.ca/eng/SOR-86-304/index.html
.16 All other Territorial and Municipal Acts, Codes, By-laws and regulations appropriate to the area of concern.

2.7.4 STANDARDS AND GUIDELINES PRODUCED BY THE GOVERNMENT OF CANADA:

.1 Standards and Directives of the Treasury Board (TB):
  .1 http://www.tbs-sct.gc.ca/pol/index-eng.aspx?tree=standard
  .2 http://www.tbs-sct.gc.ca/pol/index-eng.aspx?tree=directive
  .3 And including;
    .1 Accessibility Standard for Real Property,
      .1 http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12044
    .2 Fire Protection Standard.
      .1 http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316
.2 Labour Canada's, Fire Commissioner of Canada Standards;
  .1 http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/index.shtml.
  .2 And including,
    .1 FC-301 Standard for Construction Operations, June 1982,
    .2 FC-302 Standard for Welding and Cutting, June 1982,
    .3 FC-311 Standard for Record Storage, May 1979.
    .4 FC-403 Fire Protection Standard for sprinkler Systems, November 1994
.3 The Standards and Guidelines for the Conservation of Historic Places in Canada
  .1 www.historicplaces.ca;
.4 Labour Canada's, Technical Documents;
  .1 http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/guidelines/index.shtml
  .2 And Including,
    .1 Fire Protection for Information Technology Facilities and Equipment.
.5 Canadian Food Inspection Agency's Containment Standard for Facilities Handling Plant Pests.
.6 Public Health Agency of Canada's Laboratory Biosafety Guidelines, 3rd Edition,
.7 Canadian Council of Animal Care's Guidelines on: Laboratory Animal Facilities – Characteristics, Design and Development.

2.7.5 HEALTH CANADA STANDARDS AND GUIDELINES:

.1 Guidelines for Canadian Drinking Water Quality – Sixth Edition – 1996;
.2 Guidelines for Canadian Drinking Water Quality – Summary Table – Dec 2010;

.3 Guidance for Providing Safe Drinking Water in Areas Of Federal Jurisdiction – Version 1 – 2005;
.4 The Canadian Council of Ministers of the Environment (CCME) ;
.5 Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (CCME, 2003);
.6 Canada – Wide Strategy for the Management of municipal Waste Water Effluent;
.7 The Canadian Environmental Protection Act (CEPA, 1999);
.8 The Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, published in Canada Gazette Part II on June 12, 2008 (Registration SOR/2008-197).

2.7.6 STANDARDS AND GUIDELINES:

.1 Air Conditioning and Refrigeration Institute (ARI);
.2 American Conference of Governmental Industrial Hygienists (ACGIH, Industrial Ventilation Handbook);
.3 Air Diffusion Council (ADC);
.4 Air Movement and Control Association (AMCA);
.5 American Association of State Highway and Transportation Officials (AASHTO) Standards
.6 American National Standards Institute (ANSI);
.7 ANSI/AIHA Z9.5, Laboratory Ventilation;
.8 .1 ANSI/NEMA C82.1-04, Electric Lamp Ballasts-Line Frequency Fluorescent Lamp Ballast;
.9 .2 ANSI/NEMA C82.4-02, Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps;
.10 ANSI/TIA/EIA-606- Administration Standard for the Telecommunications Infrastructure of Commercial Buildings;
.11 ANSI Z358.1, Emergency Eyewash and Shower Equipment;
.12 American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), including but not limited to;
  .1 ASHRAE Laboratory Design Guide,
  .2 ASHRAE Standards and Guidelines,
  .3 ASHRAE Applications Handbook – 2007,
  .4 ASHRAE HVAC Systems and Equipment Handbook – 2008,
  .5 ASHRAE Fundamentals Handbook – 2009,
  .6 ASHRAE Refrigeration Handbook – 2010,
  .7 ASHRAE 52.2 Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size – 2007,
  .8 ANSI/ASHRAE 55, Thermal Environmental Conditions for Human Occupancy – 2004,
  .9 ANSI/ASHRAE 62.1, Ventilation for Acceptable Indoor Air Quality – 2010,
  .10 ASHRAE 90.1, Energy Efficient Design of New Buildings – 2010,
  .11 ASHRAE 105: Standard Method of Measuring and Expressing Building Energy Performance,
  .12 ASHRAE 110, Method of Testing Performance of Laboratory Fume Hoods,
  .13 ASHRAE 111; Practices for Measurement, Testing, Adjusting and Balancing of Building HVAC&R Systems,
  .14 ASHRAE 114; Energy Management Control Systems Instrumentation, and
  .15 ASHRAE 135; BACnet: A Date Communication Protocol for Building Automation and Control Networks.
.13 Asphalt Institute Standards for Hot Mix;

.14 American Society of Mechanical Engineers (ASME);
.15 American Society for Testing and Materials (ASTM);
.16 American Water Works Association (AWWA) Standards;
.17 American Welding Society (AWS);
.18 Associated Air Balance Council (AABC);
.19 Canadian Standards Association;
.20 CSA A23.3-04 (2010) Design of Concrete Structures;
.21 CSA B51-09 Boiler, pressure vessel and pressure piping Code;
.22 CSA B52-05 Mechanical Refrigeration Code;
.23 CSA B64-01 Backflow Preventers and Vacuum Breakers;
.24 CSA B139-09 Installation Code for Oil Burning Equipment;
.25 CSA B149.1-10 Natural Gas and Propane Installation Code;
.26 CSA B651-04 Accessible Design for the Built Environment;
.27 CSA C22.2 No. 41-07 Grounding and Bonding Equipment;
.28 CSA S16-09 Design of Steel Structures;
.29 CSA Z204-1994 Guideline for Managing Indoor Air Quality in Office Buildings;
.30 CSA Z320-11 Building Commissioning Standard & Check Sheets;
.31 CSA Z316.5-94, Fume Hoods and Associated Exhaust Systems;
.32 CAN/CSA-23.1-04 and CAN/CSA-A23.2-04 Concrete materials and methods of concrete construction; and Methods of test and standard practice for concrete CAN/CSA-C22.2 No. 214-94 "Communications Cables";
.33 CAN/CSA-C22.3 No.3-[98(R2007)], Electrical Co-ordination;
.34 CAN/CSA-B651-04(R2010), Accessible Design for the Built Environment;
.35 CAN3 C235-[83(R2010)], Preferred Voltage Levels for AC Systems, 0 to 50,000 V;
.36 CAN/CSA-T528-93, "Design Guidelines for Administration of Telecommunications Infrastructure in Commercial Buildings", Canadian Standards Association;
.37 CAN/ULC – S524-06 Standard for the Installation of Fire Alarm Systems;
.38 CAN/ULC – S537-04 Fire Alarm System Verification Report;
.39 CAN/ULC – S102-07 Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies;
.40 CAN/ULC – S102.2-07 Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies
CAN/ULC S112-M90 (R2001) Standard Methods of Fire Test of Fire-Damper Assemblies;
.41 CAN/ULC S115-05 Standard Method of Fire Tests of Fire stop Systems;
.42 International Mechanical Code – Latest Version;
.43 Institute of Boiler and Radiation, Hydronic Institute (IBR);
.44 Manufacturers Standardization Society of Valve and Fitting Industry (MSS);
.45 National Fire Protection Association (NFPA), including;
    .1 NFPA 10; Standard for Portable Fire Extinguishers – 2010,
    .2 NFPA 13; Standard for Installation of Sprinkler Systems – 2010,
    .3 NFPA 14; Standard for Installation of Standpipe and Hose Systems – 2010,
    .4 NFPA 24: Standard for the Installation of Private Fire Service Mains and Their Appurtenances-2010,
    .5 NFPA 30; Flammable and Combustible Liquids Code,
    .6 NFPA 45; Standard on Fire Protection for Laboratories Using Chemicals,
    .7 NFPA 1142: Standard on Water Supplies for Suburban and Rural Fire Fighting-2007.

.46 SEFA 1.2, Scientific Equipment & Furniture Association;
.47 Sheet Metal and Air Conditioning Contractors National Association (SMACNA);
.48 Transportation Association of Canada (TAC) Guide for Canadian Roads;
.49 Manual of Uniform Traffic Control Devices (MUTCD);
.50 Telecommunications Industry Association (TIA);
  .1 Commercial Building Telecommunications Cabling StandardTIA/EIA-568,
    .1 Part 1: General Requirements, TIA/EIA-568-B.1,
    .2 Part 2: Balanced Twisted Pair Cabling Components, TIA/EIA-568-B.2,
    .3 Addendum 1 - Transmission Performance Specification for 4-pair 100 Ohm Category 6 Cabling, TIA/EIA-568-B.2-1,
    .4 Optical Fibre Cabling Components Standards, TIA/EIA-568-B.3.
  .2 ANSI/TIA/EIA-569-A Commercial Building Standards for Telecommunications pathways and spaces,
  .3 Pathways and Spaces, ANSI/TIA/EIA-569-B,
  .4 Telecommunications Infrastructure Standard for Data centers TIA-942,
  .5 J-STD-607-A Commercial Building Grounding and - Bonding Requirements for Telecommunications.
.51 Underwriters' Laboratories of Canada (ULC);
.52 ULC/CSA Approval is required for all electrical and mechanical equipment.

2.7.7 STANDARDS AND GUIDELINES FOR TRANSPORTATION

.1 Canadian Highway Bridge Design Code
.2 Transportation Association of Canada - Manuals, Guides and Handbooks.

2.8 COMMISSIONING PROCESS

2.8.1 GENERAL

.1 This section summarizes the PWGSC commissioning process, the requirements and associated roles and responsibilities as they relate to the various phases in the delivery of a project.
.2 It is to be used as a guide in further developing the commissioning plan, specification and related documents for a project.
.3 Commissioning is not a replacement for good design and construction practices.
  .1 It requires coordinated efforts on the part of all parties involved in the Project.
.4 The Commissioning overlaps the design phase through construction and into the operation phase.
.5 The PWGSC Commissioning Manual CP.1 4th edition, November 2006, is available for free download at the following site:
  .1 http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/tech/miseenservice-commissioning/manuel-manual-eng.html
.6 The PWGSC Commission Manual CP.2 – Commissioning Glosary is available for free download at the following site:
  .1 http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/tech/miseenservice-commissioning/manuel-manual-b-eng.html
.7 "Commissioning" is a quality assurance process, in which the functional requirements of the Owner/occupant and the operational requirements of facility management are proven to function as intended.

.8 The "commissioning process" is a planned program of quality management and information transfer that extends through all phases of a project's development and delivery, up to and including the warranty period.

.9 The process consists of a series of checks and balances to ensure that the work is designed, installed and proven to operate as intended.

.10 Commissioning has two main components, functional and operational.

.1 The functional component deals with:

.1 Security, Health (indoor air quality) and occupant safety;

.2 Comfort (temperature, relative humidity, ventilation, air flow patterns, air purity and well being);

.3 Cost-effectiveness of design; and

.4 Systems and equipment supporting Owner's functional requirements.

.2 The operational component deals with:

.1 Operation and Maintenance (O&M) issues; e.g., design review with a particular concern for the operation and maintenance of the systems today and in the future, when repairs are required;

.2 Performance evaluation of systems and equipment;

.3 Accessibility to O&M Documentation; and

.4 Review of the training plan against the current needs now and in the future.

2.8.2 COMMISSIONING PLAN

.1 The Commissioning Plan will typically be developed by the Contractor through his own Commissioning Agent.

.2 The Commissioning Plan is the project-specific document and which describes the process for verifying that all built works meet the Investor's requirements within the limits of the working documents.

.3 It is essential that the Consultant provide specifications that detail requirements for all submittals and testing in each Specification Section in order for the Contractor to properly prepare a complete Commissioning Plan.

.4 The Commissioning Plan will be reviewed and accepted by the Departmental Representative prior to commencement of construction.

.5 The Commissioning Plan may require periodic update throughout design.

2.8.3 COMPONENT VERIFICATION

.1 Component verification sheets (CV) sheets are developed by the Consultant and incorporated in the contract documents to ensure the facility is an operating entity and meets the requirements as described in the Agreement.

.2 The CV sheets are intended to monitor and track the supply and shop drawing requirements associated with each component. The *Consultant* must verify that the components being installed in the built works are acceptable to their design and the approved shop drawings.

.3 The commissioning process requires the documentation of all the components installed as part of a system that will have performance verification testing conducted.

.4 Sample CV sheets for various types of components are to be provided by the Consultant in Div 01.

2.8.4 SYSTEM & INTEGRATED SYSTEM TESTING

.1 The "performance verification tests" (PVTs) are developed by the Design-Builder to ensure the facility is an operating entity and meets the requirements as described in the Agreement.

.2 The PVTs are intended to demonstrate the functional performance of the systems & integrated system during the various modes of operation, against the design intent. Each test must be uniquely identified and reflected in the contractor's commissioning schedule.

.3 Once the contract has been awarded the Design-Builder must monitor the sub-contractor's process to help ensure the timely completion of these tests. The Design-Builder must witness each test. The Design-Builder must provide final certification of the test results. After an acceptable review of the test document, the PWGSC Commissioning Specialist will recommend to the Departmental Representative the acceptance or rejection of the test results.

.4 Sample PVT sheets for various types of system are to be provided by the Consultant in Div 01.

2.8.5 TEST REQUIREMENTS

.1 Each CV or PVT shall be uniquely named, numbered and categorized by discipline.

.2 Tests shall define:

- .1 Test Purpose;
- .2 System design narrative;
- .3 Test Prerequisites;
- .4 Testing Procedures;
- .5 Test Comments; and
- .6 Test Sign-off Block.

.3 System Performance Verifications Tests

- .1 These tests have prerequisites that are to be completed and approved prior to conducting the tests, which, may include but are not limited to:
  - .1 CV and PVT sheets developed and accepted,
  - .2 Contractor proving start-up and tests,
  - .3 Manufacturers start-ups,
  - .4 Consultant has certified testing, adjusting & balancing (TAB) results, per TAB specification.
    - .1 TAB work must be completed and approved prior to the control system Pts.
  - .5 Associated control device calibrations and physical point verifications are completed and approved.
    - .1 Note, control system end to end checks to be completed and approved prior to the control system PVTs.
  - .6 Other specified deliverables, i.e. factory test reports, O&M submissions, etc.
  - .7 System performance tests associated with the integrated systems under test,
  - .8 Integrated System Performance Verifications,
  - .9 Fire alarm verifications.

2.8.6 COMMISSIONING (EVALUATION) REPORT

.1 The Commissioning (Evaluation) Report must provide:

- .1 An executive summary,
- .2 Completed CV and PVT sheets,
- .3 A complete assessment of the project,
- .4 Lessons learned from this project and any necessary recommendations,
- .5 Variances between the actual and planned levels of performance,
- .6 An evaluation of the validation and acceptance process and of the commissioning phase.

2.8.7 OVERVIEW OF ROLES AND RESPONSIBILITIES

.1 The following provides a general overview of the roles, responsibilities and implementation of the commissioning process. The commissioning process is a logical sequence of verifications from component verifications through to system & integrated system, performance verification testing.

.2 At completion of the commissioning process all results are documented and audited for acceptance.

2.8.8 MAJOR TASKS AND RESPONSIBILITIES

.1 Schematic Design and Design Development Phase:

- .1 Consultant;
  - .1 Develop commissioning strategy,
  - .2 Develop preliminary commissioning plan.
- .2 Construction Documentation Phase:
  - .1 Consultant;
    - .1 Complete the final commissioning plan,
    - .2 Specify the Commissioning requirements in Div 01 and provide sample Commissioning CV and PCT sheets in Div 01 for Bidders purposes,
    - .3 Develop project specific CV and PVT sheets.
- .3 Construction Phase:
  - .1 Consultant;
    - .1 Monitor and report on contract commissioning activities,
    - .2 Finalize development of job specific CV and PVT sheets,
    - .3 Review and certify component verification sheets as they are completed by the Contractor, and
    - .4 Review commissioning schedule
  - .2 Contractor;
    - .1 Comply with the requirements in the Specifications,
    - .2 Complete the component verification,
    - .3 Conduct the equipment system start-up and proving, and
    - .4 Develop the commissioning schedule, reflecting the PVTs.
- .4 Commissioning Phase
  - .1 Consultant
    - .1 Witness all system and integrated systems tests,
    - .2 Review and certify commissioning test results,
    - .3 Track and compile all commissioning documentation submitted by the contractor and confirm that all commissioning tasks are completed,
    - .4 Incorporate all commissioning documentation into a preliminary commissioning report and recommend interim acceptance.
    - .5 Identify "deferred" commissioning tests due to seasonal constraints, etc.
  - .2 Contractor
    - .1 Comply with the requirements in the specifications,
    - .2 Conduct the system testing, and
    - .3 Conduct the integrated system testing.
- .5 Operating Phase
  - .1 Consultant
    - .1 Provide advice and recommendations for fine tuning, if required,
    - .2 Witness "deferred" commissioning tests,

.3 Review and certify "deferred" systems test results,
.4 Incorporate deferred system test results and all other commissioning documentation into a final commissioning report with an executive summary recommending final acceptance.
.2 Contractor
.1 Address warranty issues,
.6 Evaluation Phase
.1 Consultant
.1 Provide advice and recommendations during the final evaluation.

2.9 CONSTRUCTION DOCUMENTS

2.9.1 PURPOSE

.1 This section provides direction in the preparation of construction contract documents (namely specifications, drawings and addenda) for PWGSC.
.2 Drawings, specifications and addenda must be complete and clear, in order that a contractor can prepare a bid without guesswork. Standard practice for the preparation of construction contract documents requires that:
.1 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.
.2 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.
.3 Addenda are changes to the construction contract documents or tendering procedures, issued during the tendering process.

2.9.2 PRINCIPLES FOR PWGSC CONTRACT DOCUMENTS

.1 PWGSC's contract documents are based on common public procurement principles.
.2 PWGSC does not use Canadian Construction Document Committee (CCDC) documents.
.3 The construction contract and the terms and conditions are prepared and issued by PWGSC, along with all other related bidding and contractual documents.
.1 For more detailed information, the clauses are available on the following web site:
.2 http://ccua-sacc.tpsgc-pwgsc.gc.ca/pub/acho-eng.jsp
.3 Any questions should be directed through the PWGSC Project Manager.

2.9.3 QUALITY ASSURANCE

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

2.9.4 ADDENDA

.1 Format
.1 Prepare addenda using the format shown in Appendix 'C'.
.2 No signature type information is to appear.
.3 Every page of the addendum (including attachments) must be numbered consecutively.
.4 All pages must have the PWGSC project number and the appropriate addendum number.
.5 Sketches shall appear in the PWGSC format, stamped and signed.
.6 No Consultant information (name, address, phone #, consultant project # etc.) may appear in the addendum or its attachments (except on sketches).
.2 Content

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

2.9.5 SUBMISSIONS

.1 For each construction document submission, the Consultant shall provide:
  .1 A completed and signed Checklist for the Submission of Construction Documents (See Appendix 'B')
  .2 Original specification; printed one side on 216 mm x 280 mm white bond paper.
  .3 Index, as per Appendix 'C'
  .4 Reproducible original drawings; sealed and signed by the design authority.
  .5 Addenda (if required), as per Appendix 'D;' (to be issued by PWGSC)
.2 Tender information:
  .1 Include a description of all units and estimated quantities to be included in unit price table.
  .2 Include a list of significant trades including costs.
    .1 PWGSC will then determine which trades, if any, will be tendered through the Bid Depository.
.3 Government Electronic Tendering System (MERX):
  .1 Consultants shall 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.
  .2 The electronic copy of drawings and specifications is for bidding purposes only and do not require to be signed and sealed.

2.9.6 PWGSC ROLE

.1 PWGSC shall provide:
  .1 General and Special Instructions to Bidders
  .2 Bid and Acceptance Form
  .3 Standard Construction Contract Documents

2.10 SPECIFICATIONS

2.10.1 GENERAL

.1 In preparing project specifications, the Consultant must use the current edition of the National Master Specification (NMS) in accordance with the "NMS User's Guide".

2.10.2 NATIONAL MASTER SPECIFICATION (NMS)

.1 In preparing project specifications, the Consultant must use the current edition of the National Master Specification (NMS) in accordance with the "NMS User's Guide".
.2 The NMS is a master construction specification available in both official languages, which is divided into 48 Divisions (Masterformat 2004) and is used for a wide range of construction and/or renovation projects.
.3 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 of conflict and ambiguity.

2.10.3 SPECIFICATION ORGANIZATION

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

.3 For specifications not included in the NMS, but required for the project, follow the number and title recommendations of Masterformat 2004
.4 Number each page and start each Section on a new page
.5 Bind specifications
.6 Include Division 1, edited to PWGSC requirements.
.7 Note: Consultant's name is not to be indicated in the specifications..

2.10.4 TERMINOLOGY

.1 Use the term "Departmental Representative" instead of Engineer, PWGSC, Owner, Consultant or Architect.
.2 "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.
.3 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.
.4 Specifications must permit bidders to calculate all quantities and bid accurately.
  .1 If quantities are impossible to identify (i.e. cracks to be repaired) give an estimated quantity for bid purposes (unit prices).
.5 Ensure that the terminology used throughout the specifications is consistent and does not contradict the applicable standard construction contract documents.

2.10.5 DIMENSIONS

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

2.10.6 STANDARDS

.1 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.
.2 Canadian standards should be used wherever possible.

2.10.7 SPECIFYING MATERIALS

.1 The practice of specifying actual brand names, model numbers, etc., is against departmental policy except for special circumstances.
.2 The method of specifying materials shall be by using industry recognized standards.
.3 If the above method cannot be used and where no standards exist, specify by a non-restrictive, non-trade name "prescription" or "performance" specifications.
.4 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
.5 Include all known materials acceptable for the purpose intended, and in the case of equipment, identify by type and model number.

2.10.8 ACCEPTABLE PRODUCTS AND MATERIALS

.1 The term "Acceptable Manufacturers" must not be used, as this restricts competition and does not ensure the actual material or product will be acceptable.
  .1 A list of words and phrases that should be avoided is included in the NMS User's Guide.
.2 Listing of acceptable products or materials is to be an exception, due to a unique specification or for the purpose of assisting bidders in identifying lesser known potential products or materials.

.3 For exceptions, provide justifiable reasons for listing products and materials and submit to the *Departmental Representative* for acceptance.

.4 When authorized to list acceptable products or materials, list all, with a minimum of three (3), trade names of products and materials acceptable for the intended purpose.

2.10.9 ALTERNATE PRODUCTS AND MATERIALS

.1 Alternates must be approved by addendum issued by the *Departmental Representative* in accordance with Instructions to bidders.

.2 Review applications for approval of alternate products and materials and provide recommendations to the *Departmental Representative.*

.3 Compare products/materials to specifications. Do not compare product-to-product or material-to-material.

2.10.10 SEPARATE AND ALTERNATE PRICES

.1 Do not include Separate or Alternate Pricing .

2.10.11 SOLE SOURCING

.1 Sole sourcing for materials and work may be used for proprietary systems (i.e. fire alarm systems, EMCS systems).

.2 Substantiation and/or justification will be required.

.3 Prior to including sole source materials and/or work, the Consultant must contact the Departmental Representative to obtain the approval for the sole sourcing.

2.10.12 UNIT PRICES

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

2.10.13 CASH ALLOWANCES

.1 Construction contract documents should be complete and contain all of the requirements for the contractual work.

.2 Cash allowances are to be used only under exceptional circumstances (i.e. utility companies, municipalities), where no other method of specifying is appropriate.

.3 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.

2.10.14 WARRANTIES

.1 It is the practice of PWGSC to have a 12-month warranty and to avoid extending warranties for more than 24 months.

.2 When it is deemed necessary to extend a warranty beyond the 12 month period provided for in the General Conditions of the contract, obtain approval from the Project Manager.

.3 Delete all references to manufacturers' guarantees.

2.10.15 SCOPE OF WORK

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

2.10.16 SUMMARY AND SECTION INCLUDES

.1 In Part -1 All Sections; do not use (delete):

.1 "Summary" and

.2 "Section Includes."

2.10.17 RELATED SECTIONS

.1 In Part 1 All Sections; do not use (delete)

2.10.18 INDEX

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

2.10.19 HEALTH AND SAFETY

.1 Confirm with the Project Manager to determine if there are any instructions to meet regional requirements.

2.10.20 EXPERIENCE AND QUALIFICATIONS

.1 Remove experience and qualification requirements from specification sections.

2.10.21 PREQUALIFICATION

.1 Do not include in the specification any mandatory contractor and/or subcontractor prequalification requirements that could become a contract award condition.

.2 If a prequalification process is required, contact the Project Manager.

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

2.10.22 CONTRACTING ISSUES

.1 Specifications describe the workmanship and quality of the work.

.1 Contracting issues should not appear in the specifications.

.2 Division 00 of the NMS is not used for PWGSC projects.

.3 Remove all references within the specifications, to the following:

.1 General Instructions to Bidders
.2 General Conditions
.3 CCDC documents
.4 Health and Safety requirements
.5 Priority of documents
.6 Security clauses
.7 Terms of payment or holdback
.8 Tendering process
.9 Bonding requirements
.10 Insurance requirements
.11 Alternative and separate pricing
.12 Site visit (Mandatory or Optional)
.13 Release of Lien and deficiency holdbacks

2.11 DRAWINGS

2.11.1 GENERAL

.1 Drawings shall be in accordance with PWGSC Western CADD Standards and CSA B78.3.

.2 Refer to:

.1 http://www.tpsgc-pwgsc.gc.ca/cdao-cadd/ouest-western/tdm-toc-eng.html
.2 The above link is subject to change
.3 The Consultant shall check with the Project Manager to ensure that the link is current.

.3 Download and use the Toolkit which includes drawing border templates, layer utility and drawing standards checker.

2.11.2 TITLE BLOCKS

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

2.11.3 DIMENSIONS

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

2.11.4 TRADE NAMES

.1 Trade names on drawings are not acceptable.
.2 Refer to SECTON 2.3, SPECIFICATIONS; 2.3.6 Specifying Materials for specifying materials by trade name.

2.11.5 SPECIFICATION NOTES

.1 No specification type notes are to appear on any drawing.

2.11.6 TERMINOLOGY

.1 Use the term "Departmental Representative" instead of Engineer, PWGSC, Owner, Consultant or Architect.
.2 "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.
.3 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", may not be indicated on the drawings or in the specifications as this promotes inaccurate and inflated bids.
.4 Specifications & drawings must permit bidders to calculate all quantities and bid accurately.
.5 If quantities are impossible to identify (i.e. cracks to be repaired) give an estimated quantity for bid purposes (unit prices).
.6 Ensure that the terminology used throughout the drawings & specifications is consistent and does not contradict the applicable standard construction contract documents.

2.11.7 INFORMATION TO BE INCLUDED

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

2.11.8 DRAWING NUMBERS

.1 Number drawings in sets according to the type of drawing and the discipline involved as follows:
  .1 The requirements of SECTION 2 PWGSC NATIONAL CADD STANDARD will supersede these requirements, where warranted.
.2 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.

2.11.9 PRINTS

.1 Print with black lines on white paper.
.2 Blue prints are acceptable for document submissions at stages outlined in the TOR.
.3 Confirm with Departmental Representative the size of prints to be provided for review purposes.

2.11.10 BINDING

.1 Staple or otherwise bind prints into sets.
.2 Where presentations exceed 20 sheets, the drawings for each discipline may be bound separately for convenience and ease of handling.

2.11.11 LEGENDS

.1 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.

2.11.12 SCHEDULES

.1 Where schedules occupy entire sheets, locate them next to the plan sheets or at the back of each set of drawings for convenient reference.
    .1 See CGSB 33-GP-7 Architectural Drawing Practices for schedule arrangements.

2.11.13 NORTH POINTS

.1 On all plans include a north point.
.2 Orient all plans in the same direction for easy cross-referencing.
.3 Wherever possible, lay out plans so that the north point is at the top of the sheet.

2.11.14 DRAWING SYMBOLS

.1 Follow generally accepted drawing conventions, understandable by the construction trades, and in accordance with PWGSC publications.

3 PROJECT ADMINISTRATION

3.1 GENERAL REQUIREMENTS FOR ALL PROJECTS

.1 The administration requirements outlined in this section are applicable to all PWGSC projects in Western Region, unless otherwise indicated in the TOR.
.2 "Project Team" refers to key representatives involved in this project.
.3 All team members must maintain a professional, cordial and collaborative relationship.

3.2 LANGUAGE

.1 Construction documents must be prepared in English.

3.3 MEDIA

.1 The Consultant shall not respond to any media inquiry.
.2 Direct all media requests to the Departmental Representative.

3.4 PROJECT MANAGEMENT

3.4.1 GENERAL

.1 Public Works and Government Services Canada administers the project on behalf of Canada and exercises continuing control over the project during all phases of development.
.2 This project is to be organized, managed and implemented in a collaborative manner.
.3 The PWGSC project management team, the Consultant, the Contractor and the User Department teams are to work cooperatively at every stage of the design and construction process in order to assure the creation of a successful and meaningful work of architecture.
.4 Under the leadership of the PWGSC Departmental Representative, all team members are responsible for establishing and maintaining a professional and cordial relationship.

3.4.2 NATIONAL PROJECT MANAGEMENT SYSTEM

.1 PWGSC uses the National Project Management System (NPMS) for management of its building projects in order to align with the Federal Government approvals processes. Refer to the PWGSC NPMS web site for more details.
.2 http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/index-eng.html
.3 This GP&S document speaks to services that are normally provided by the professional during the Project Delivery Phase of the NMPS.

3.4.3 DESIGN STAGE

.1 Pre-design Process
  .1 The purpose of this phase is to analyze all project requirements including codes, regulations, programming, sustainability, cost, time management and risk to demonstrate a full understanding of the project
  .2 The approved deliverable will become the formal project work plan and will be utilized throughout the project to guide the delivery.
.2 Schematic Design Process
  .1 The purpose of this phase is to explore three distinctly different design options and to analyze them against the project requirements.
  .2 The Schematic Design will be in sufficient detail to illustrate and communicate the project characteristics.
    .1 Provide a detailed review and analysis of the project requirements including all updates and amendments to ensure all requirements are fully integrated into the Schematic Design.

.2 Out of this process the Schematic Design will be accepted and authorization to proceed to Design Development will be based on the accepted Schematic Design.

.3 The *Departmental Representative*, in concert with others shall choose one option to be further developed.

.1 Although the *Consultant* is required to identify a preferred option, the *Departmental Representative* may select another option.

.2 The approved deliverable will become the formal project work plan and will be utilized throughout the project to guide the delivery.

3.4.4 IMPLEMENTATION STAGE

.1 Design Development Process

.1 The purpose of this phase is to further develop the design option selected for refinement at the Schematic Design stage.

.2 The Design Development documents consist of drawings and other documents to describe the scope, quality and cost of the project in sufficient detail to facilitate design approval, confirmation of code compliance, detailed planning of construction and project approval.

.3 This design will be used as the basis for preparation of construction documents.

.4 The approved deliverable will become the formal project work plan and will be utilized throughout the project to guide the delivery.

.2 Commissioning Process

.1 "Commissioning" is a quality assurance process, in which the functional requirements of the Owner/occupant and the operational requirements of facility management are tested, verified and proven to function as intended.

.2 Commissioning deliverables occur at various phases throughout the project as detailed in section 2.8.

.3 Commissioning shall be in accordance with the PWGSC Commissioning Manual CP.1 (2003).

.3 Construction Document Process

.1 The purpose of this phase is to translate design development documents into construction drawings and specifications, for use by the contractor to determine a cost for the work and to construct the building.

.4 Contract Procurement Process

.1 The purpose of this phase is to obtain and evaluate bids/proposals from qualified contractors to construct the project, as per the Construction Contract Documents and to award the construction contract according to government regulations.

.5 Construction Contract Administration Process

.1 The purpose of this phase is to implement the project in compliance with the Construction Contract Documents and to direct and monitor all necessary or requested changes to the scope of work during construction, commissioning and closeout.

3.4.5 CLOSEOUT STAGE

.1 Post Construction Process

.1 The purpose of this phase is to ensure the orderly completion and recording of all aspects of the work during the construction and liaise with the Public Works And Government Services Canada and other agencies as appropriate to close out the project.

3.4.6 ENGINEERING PROJECTS

.1 Refer to the project specific TOR where the stages for an Engineering Project differs slightly.

3.5 LINES OF COMMUNICATION

.1 In general, communications will be through the Departmental Representative, unless directed otherwise.
  .1 This includes formal contact between the Consultant, the Contractor, the PWGSC Project Team and the User Department.

.2 Direct communication between members of the PWGSC Project Team on routine matters may be required for resolution of technical issues.
  .1 However, this shall not alter project scope, budget or schedules, unless confirmed in writing by the Departmental Representative.

.3 During construction tender call, PWGSC will conduct all correspondence with bidders and award the contract.

3.6 MEETINGS

.1 The Departmental Representative will arrange meetings throughout the project, with representatives from:
  .1 The User Department;
  .2 PWGSC
  .3 The Consultant team; and
  .4 The Contractor (during the construction phase)

.2 Standing agenda items shall include:
  .1 Project Schedule,
  .2 Cost,
  .3 Risk,
  .4 Quality,
  .5 Health and safety

3.7 CONSULTANT RESPONSIBILITIES

.1 The "Consultant Team" includes the Consultant's staff, sub-consultants and specialists.
  .1 This team must maintain its expertise for the duration of the project.
  .2 The team must include qualified registered architectural and engineering professionals, with extensive relevant experience, capable of providing all required services.
  .3 Team members may be qualified to provide services in more than one discipline.
  .4 The Consultant may expand the team to include additional disciplines.

.2 The Consultant is responsible for:
  .1 Obtaining Departmental Representative acceptance for each project phase before proceeding to the next phase.
  .2 Accurately communicating design, budget, and scheduling issues to staff, sub-consultants and specialists.
  .3 Co-ordinating input for the Departmental Representative's Risk Management Plan
  .4 Co-ordinating the quality assurance process and ensuring that submissions of sub-consultants are complete and signed-off by reviewers;
  .5 During the design phases:
    .1 Attend meetings,
    .2 Record the issues and decisions,
    .3 Prepare and distribute minutes within two working days of the meeting,

.4 Ensure all meetings are green i.e. using electronic documents or double-sided hard copies and

.5 Ensure sub-consultants attend required meetings.

.6 During the construction phase:

.1 Attend meetings and provide site inspection services

.2 Ensure sub-consultants provide site inspection services and attend required meetings.

.3 The Consultant is responsible for:

.1 Coordinating and directing the work of all team activities, sub-consultants and specialists

.2 Preparing a design that meets project requirements.

.3 Obtaining approvals on behalf of the Departmental Representative from the User and other levels of government such as provincial and municipal governments

.1 The Consultant shall adjust the documentation to meet the requirements of these authorities.

3.8 PWGSC RESPONSIBILITIES

.1 Administration

.1 PWGSC administers the project and exercises continuing control over the project during all phases of development.

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

.2 Reviews

.1 PWGSC will review the work at various stages and reserves the right to reject unsatisfactory work at any stage.

.2 If later reviews show that earlier acceptances must be withdrawn, the Consultant shall re-design and re-submit at no extra cost.

.3 Acceptance

.1 PWGSC acceptance of submissions from the Consultant simply indicates that, based on a general review, the material complies with governmental objectives and practices, and meets overall project objectives

.2 Acceptance does not relieve the Consultant of professional responsibility for the work and for compliance with the contract.

.4 PWGSC Project Management

.1 The Project Manager assigned to the project is the Departmental Representative.

.2 The Departmental Representative is directly responsible for:

.1 The progress and administration of the project, on behalf of PWGSC

.2 Day-to-day project management and is the Consultant's single point of contact for project direction.

.3 Providing authorizations to the Consultant on various tasks throughout the project.

.3 Unless directed otherwise by the Departmental Representative, the Consultant obtains all Federal approvals necessary for the work.

.5 PWGSC Professional & Technical Resources Team

.1 Provides professional advice and quality assurance reviews of consultant deliverables by Architectural and Engineering professional disciplines.

.2 Offers expert technical advice on related project issues, such as functional programming, options analysis, risk management, cost planning, scheduling, contract interpretation, specifications, terms of reference, commissioning, claims management, project delivery approach and project compliance.

.3 Participates regularly in design phases and may attend (during construction), contractor meetings and conduct field reviews on behalf of the Departmental Representative.
.4 Provides a Design Manager for the project, who will coordinate the services of the Professional & Technical Resources Team through the Departmental Representative;
.1 The Design Manager is the assembler and coordinator of the Resources Team of Architects, Engineers, Interior Designers, Project Planners, Cost Planners and Commissioning Specialists, all with specific areas of expertise.

.6 PWGSC Commissioning Specialist represents the Departmental Representative's interests in the commissioning process for buildings by:
.1 Providing technical advice on O&M matters, operational criteria and quality assurance on the commissioning process throughout the project life cycle;
.2 Coordinating and overseeing internal PWGSC commissioning activities during all project phases to ensure that O&M concerns are addressed;
.3 Working closely with the Consultant, the Consultant's Commissioning Manager, the Contractor, and the Departmental Representative for Commissioning activities and,
.4 Reviews all documentation and reported results relative to commissioning throughout the project delivery.

3.9 USER DEPARTMENT RESPONSIBILITES

.1 The User Department Project Leader
.1 Is accountable for the expenditure of public funds and delivery of the project in accordance with terms accepted by the Treasury Board
.2 Reports to senior User Department executive management
.3 Will play several critical roles for the successful implementation of the project, as follows:
.1 Coordinate the quality, timing and completeness of information and decisions relating to issues related to the functional performance of the facility;

3.10 REVIEW AND APPROVAL BY PROVINCIAL AND MUNICIPAL AUTHORITIES

.1 The federal government generally defers to provincial and municipal authorities for specific regulations, standards and inspections but in areas of conflict, the more stringent authority prevails.
.2 Municipal authority review
.1 The purpose of this review is information and awareness;
.2 Submissions will be reviewed at the completion of specific phases as outlined in the Required Services Section of the TOR.

3.11 BUILDING PERMITS AND OCCUPANCY PERMITS

.1 The Consultant will support the Contractor in applying for building permits by providing the required documentation.
.1 These documents will be submitted at phases as requested by the municipal authorities.
.2 The Consultant will negotiate and resolve building permit related issues.
.2 The Consultant shall support the Contractor in its application for an occupancy permit and coordinate the resolution of all outstanding issues relating to the permit.
.3 The Contractor shall pay for the permits on behalf of PWGSC.

3.12 TECHNICAL AND FUNCTIONAL REVIEWS

.1 This includes both COE reviews and User Department reviews.

.1 The Purpose of these reviews is technical and functional quality assurance;
.2 Submissions will be reviewed at the completion of specific phases as outlined in the Required Services Section of the TOR.

.2 HRSDC Reviews of building projects
.1 The purpose of these reviews is for fire protection, health and life safety;
.2 Submissions will be reviewed at the completion of specific phases as outlined in the Required Services Section of the TOR.

APPENDIX A CHECKLISTS

A.1 CHECKLIST FOR THE SUBMISSION OF CONSTRUCTION DOCUMENTS

A1.1 TITLE BLOCK

Project Title:		Date:
Project Location:		**Project Number:**
Consultant's Name:		**Contract Number:**
PWGSC PM:	**Review Stage:**	

A1.2 STANDARDS & GUIDELINES

ITEM		Checked by:	Progress Submission	Pre-Tender or Tender Ready Submission	Comments:
1. General The design meets the requirements of;					
.1	National Building Code - 2005				
.2	National Fire Code - 2005				
.3	National Plumbing Code - 2005				
.4	Canada Labour Code				
.5	NFPA 10 - Standard for Portable Fire Extinguishers - 2002				
.6	NFPA 13 - Standard for the Installation of Sprinkler Systems - 2007				
.7	NFPA 14 – Standard for the Installation of Standpipe and Hose Systems - 2003				
2. Treasury Board The design meets the requirements of;					
.1	Chapter 3-6: Fire Protection Standard for Correctional Institutions. http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=13580				
.2	Chapter 3-2: Fire Protection Standard for Design & Construction. http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=13581				
.3	Fire Protection Standard for Electronic Data Processing				

	Equipment. http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=13582				
	3. HRSDC Fire Protection Engineer Standards The design meets the requirements of;				
.1	Federal Fire Protection Standards. http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/index.shtml				
.2	FC-403 Standard for Sprinkler Systems. http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/403/page00.shtml				
.3	FC-311-M Standard for Record Storage. http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/311/page00.shtml				
	4. Labour Canada Standards The design meets the requirements of;				
.1	Canada Labour Code. http://laws.justice.gc.ca/en/L-2/				
.2	Canada Occupational Health and Safety Regulations. http://laws.justice.gc.ca/eng/SOR-86-304/index.html				
.3	Movable Storage Units Standard. http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/guidelines/mobile.shtml				
	5. ASHRAE Standards The design meets the requirements of;				
.1	ANSI/ASHRAE 55 – 2004 Thermal Environmental Conditions for Human Occupancy				
.2	ASHRAE 62.1 – 2007 – Ventilation for Acceptable Indoor Air Quality				
.3	ASHRAE Applications Handbook				
.4	ASHRAE Fundamentals Handbook				

6. PWGSC MD Standards The design meets the requirements of;				
.1 MD 15116 – Computer Room Air Conditioning Systems - 2006				
.2 MD 15128 – Minimum Guidelines for Laboratory Fume Hoods – March 2004				
.3 MD 15129 – Perchloric Acid Fume Hoods - 2006				
.4 MD 15161 – Guidelines for the control of Legionalla in mechanical systems				
.5 MD 250005 – Energy Monitoring and Control Systems Design Guidelines - 2009				

A1.3 SPECIFICATIONS – ALL DISCIPLINES

ITEM	Checked by:	Progress Submission	Pre-Tender or Tender Ready Submission	Comments:
1. General The Specifications meet the requirements of;				
.1 The NMS Users Guide. .				
.2 Masterformat 2004				
.3 The current edition of the NMS database				
.4 Deletion of "Related Sections" and "Section Includes" throughout.				
.5 PWGSC GCs for projects tendered through PWGSC				
.6 Consistent use of CCDC or other for privately tendered projects.				
.7 Non-proprietary Specifications.				
.8 Being completely edited with removal of all square choice brackets and Spec Notes.				
.9 Including all relevant Sections as evident by the by the scope of work indicated by the drawings.				
.10 Not referring to the Tender Submission (Contract B)				
.11 Use of command imperative style of language.				
.12 Formatting in either the NMS				

	1/3 - 2/3 page format or the Construction Specifications Canada full page format.				
.13	Each Section starting on a new page and the Project Number, Section Title, Section Number and Page Number show on the header of each page only.				
.14	Specification headers not including date or consultant's name.				
.15	Departmental Representative being used throughout instead of Engineer, PWGSC, Owner, Consultant or Architect. (That is; the contractual entity)				
.16	Non use of notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to", "equivalent to" and "to be determined on site by".				
.17	Dimensions being provided in metric only.				
.18	Indicating the latest edition of all references noted in Part 1 of each Section and that un-used reference Standards are deleted.				
.19	No bolding of text.				
.20	Use of Western Regions standard payments procedures clause.				

A1.4 DRAWINGS GENERAL – ALL DISCIPLINES

ITEM		Checked by:	Progress Submission	Pre-Tender or Tender Ready Submission	Comments:
1. General The Drawings meet the requirements of;					
.1	PWGSC Western Region AutoCAD drafting standards.				
.2	Using the "toolkit" and the "drawing checker".				
.3	All dimensions in SI. No dual dimensioning has been used.				
.4	Providing a north arrow.				
.5	Providing a legend on all relevant sheets.				
.6	Indicating grid lines on all				

	sheets.				
.7	Using standard scales. (1:50, 1:100 etc.)				
.8	Cross referencing and detailing is consistent.				
.9	No Specifications on drawings.				
.10	All notes being written in the command imperative style of speech.				
.11	Not naming the “Contractor” or “sub trades” in the notes.				
.12	Numbering all rooms on all floor plans.				
.13	Using appropriate line weights to differentiate new versus existing versus demolition.				
.14	Using font sizes and types following PWGSC drafting standards.				
.15	Providing separate drawings for demolition and new work.				
.16	Drawing acceptance by the FPE of HRSDC.				

A1.5 DRAWINGS - DISCIPLINE SPECIFIC

ITEM		Checked by:	Progress Submission	Pre-Tender or Tender Ready Submission	Comments:
1. Architectural The Drawings meet the requirements of;					
.1	Providing a Building Code Analysis.				
.2	Indicating fire separations and firewalls and rating.				
.3	Providing a complete site plan with all related details.				
.4	Providing a fully detailed reflected ceiling plan showing lighting, diffusers, sprinkler heads, etc.				
.5	Wall sections being coordinated with the structural and other disciplines drawings.				
.6	Building elevations showing all mechanical and electrical ancillaries.				
.7	Sub surface drainage being shown on the foundation plans and coordinated with all other disciplines.				

.8	Accessibility conforming to CAN/CSA 651-04.				
.9	Coordination of door, finish, hardware schedules in conjunction with fire separations and other disciplines.				
.10	All conflict points identified by BIM have been resolved.				
2. Structural The Drawings meet the requirements of;					
.1	Ensuring that General Notes provide additional information that is NOT covered in Specifications.				
.2	Remove all information that is or should be covered by the Specifications.				
.3	Note loads used for design.				
.4	PWGSC policy of using general product descriptions, not proprietary product names followed.				
.5	Table of Abbreviations used provided.				
.6	Section bubbles properly cross referenced.				
.7	Coordination with all other disciplines.				
3. Mechanical The Drawings meet the requirements of;					
.1	Separate drawings for Plumbing, HVAC, Fire Suppression, etc.				
.2	Provision for humidification with a clean source of water and no standing water				
.3	Provision of separate HVAC zoning for each unique thermal zone.				
.4	Providing Ventilation to ASHRAE 62.1.				
.5	Meets all requirements of ASHRAE 62.1, Section 5.				
.6	All thermostats are wall mounted.				
.7	The building and systems and equipment meeting all requirements of Section 5 of ASHRAE 62.1.				
.8	Conformance to ASHRAE 55 for; .1 Operative				

	temperature .2 Air motion .3 Radiant Temperature Asymmetry .4 Draft .5 Vertical Temperature Difference .6 Floor Surface Temperature .7 Temperature Variations with Time .8 Cyclic Variations .9 Drifts and Ramps				
.9	Providing building cross-sections at all key locations showing clearances for the mechanical installation and access for maintenance.				
.10	Providing sufficient access to mechanical equipment for maintenance.				
.11	Providing mechanical schematics showing design pressure and temperatures as well as all instrumentation and control points labels.				
.12	Design complies with all referenced PWGSC MD Standards.				
.13	Equipment schedules on the drawings coordinate and agree with the Book Specifications.				
.14	Duct attenuation is designed to conform to the STC requirements shown on the architectural drawings.				
.15	Coordination with all other disciplines.				
4. Electrical The Drawings meet the requirements of;					
.1	Separate drawings for Lighting, Power, Fire Alarm System, Communication and Data, Security & CCTV etc.				
.2	Verification and acceptance of the Grounding condition for this project.				
.3	The Overcurrent and Short Circuit Study and confirming all components are fully coordinated.				
.4	The Arch-Flash Study and confirming all components are fully coordinated.				
.5	Providing Arch protection				

	warning signs and labeling.				
.6	Providing lighting Levels in accordance with the National Building Code and IESNA recommendations.				
.7	Not using Armored Cable. Using Armored Cable will be allowed only for jumping from one light fixture to the other in a distance up to 3m.				
.8	Providing identification for each circuit including: .1 Name .2 Voltage, .3 Phase, .4 Amps, .5 Circuit-s .6 Fed from Panel, Destination.				
.9	The Voltage Drop Calculation for each circuit and conformance to CEC requirements.				
.10	Providing phase load and total load for each panel and ensuring proper balance of the Electrical System.				
.11	Coordination with all other disciplines.				
	5. Civil The Drawings meet the requirements of;				
.1	The design criteria. (e.g. deign vehicle for surface structures, design period and other data for WM.WW, SW and other systems including data and calculations showing design requirements and provided capacities)				
.2	The reference standards. (e.g. minimum service connection pipe or minimum WM size, etc have been used for municipal works, name the local authority whose standards are used.)				
.3	Indicating existing sub-grade soil properties and strength that has been used for the design is indicated on drawings or in a report.				
.4	Indicating Bench Marks used for the Topographic Survey are shown with Northing, Easting and elevation data.				
.5	Indicating the Final				

	Geometric layout for existing and new infrastructures and facilities including centerline of all access roads and pipes. The data provided includes Northing and Easting of all points including start and end point and for all other points wherever there is change in direction, and all horizontal curve data				
.6	Providing typical X-sections for all structures, including type, thickness of various materials for pavement structures, and pipe diameter, material types and thickness and SDR values.				
.7	Providing design grades and slopes.				
.8	Providing details for all infrastructures and facilities indicating all works and type of materials and all geometrics and dimensions..				
.9	Coordination with all other disciplines.				

APPENDIX B SPECIFICATION TOC STANDARDS

B.1 GENERAL

B1.1 SPECIFICATIONS

.1 List all Divisions, Sections (by number and title) and number of pages.

B1.2 DRAWINGS

.1 List all Drawings by number and title.

B.2 SAMPLE OF TABLE OF CONTENTS

Project No: **Table of Contents** **Index**
R.xxxxxx **Page 1 of xx**

SPECIFICATIONS:

.3
.4
No. Pages
.5 Division 01 – GENERAL REQUIREMENTS

.6 01 11 00 – Summary of Work xx pages
.7 01 14 00 – Work Restrictions xx pages
.8 01 29 00 – Payment Procedures xx pages

.9 Division 02 – EXISTING CONDITIONS

.10 ETC.

.11

DRAWINGS:

C-1	Civil
L-1	Landscaping
A-1	Architectural
S-1	Structural
M-1	Mechanical
E-1	Electrical

APPENDIX C ADDENDUM FORMAT STANDARD

C.1 SAMPLE OF ADDENDUM FORMAT

C1.1 DRAWINGS

.1 Indicate drawing number and title, then list changes or indicate revision number and date, and re-issue drawing with addendum.

C1.2 SPECIFICATIONS

.1 Indicate section number and title.

.2 List all changes (i.e. delete, add or change) by article or paragraph

Project Title:	**Addendum No:**
Project Location:	**Project Number:**
Consultant's Name:	**Date:**

The following changes in the bid documents are effective immediately.
This addendum will form part of the contract documents

Drawings

1 A1 Architectural

Specifications

1 Section 01 00 10 - General Instructions

.1 Delete article (xx) entirely.

.2 Refer to paragraph (xx) and revise “xxx”, to read “xxxx”..

2 Section 23 05 00 - Common Work Results - Mechanical

.1 Add new article (x.xx) as follows:

APPENDIX D DIGITAL TENDER DOCUMENTS STANDARDS

D.1 CONVENTION STANDARDS FOR TENDER DOCUMENTS

D1.1 USER MANUAL

.1 Refer to the User manual on directory structure and naming convention standards for construction tender documents on CD ROM.

.1 Issued by: Real Property Contracting Directorate, PWGSC,

.2 Version 1.0, May 2005.

D1.2 PREFACE

.1 The Government of Canada (GoC) has committed to move towards an electronic environment for the majority of the services it offers.

.2 This covers the advertisement and distribution of contract opportunities, including construction solicitations.

.3 As a result, it is now 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).

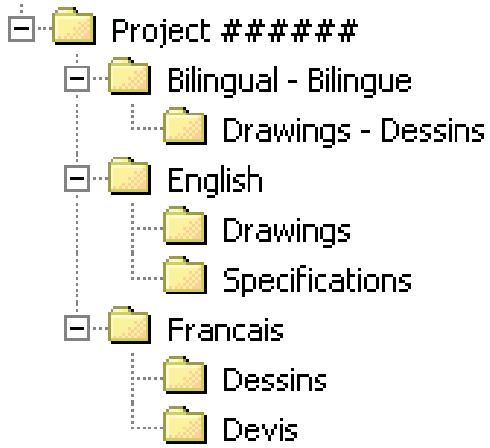
.4 There is therefore a need to adopt a common directory structure and file-naming convention to ensure that the information made available to contractors electronically and in hard (printed) copy is in accordance with the sequence adopted in the real property industries, both for design and construction.

.5 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.

.6 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.

.7 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.

D1.3 DIRECTORY STRUCTURE



D1.4 1ST, 2ND AND 3RD TIER SUB-FOLDERS

.1 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:

.2 The following important points are to be noted about the Directory Structure:

.1 The "*Project ######*" folder is considered the 1st Tier of the Directory Structure where ###### represents each digit of the Project Number.

.2 The Project Number must always be used to name the 1st Tier folder and it is always required.

.3 Free text can be added following the Project Number, to include such things as a brief description or the project title;

.3 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;

.4 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.

.5 IMPORTANT NOTE:

.1 The applicable elements of the Directory Structure (1st, 2nd and 3rd Tier folders) are always required and cannot be modified.

D1.5 4TH TIER SUB-FOLDERS FOR DRAWINGS

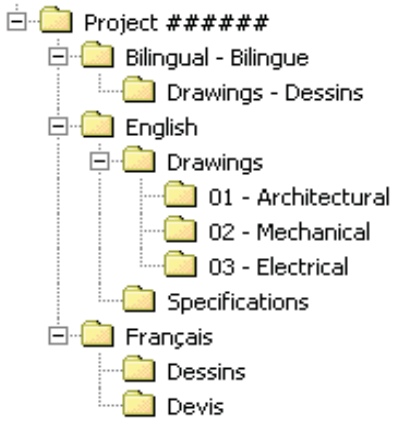
.1 The "*Drawings – Dessins*", "*Drawings*" and "*Dessins*" folders must have 4th Tier sub-folders created to reflect the various disciplines of the set of drawings.

.2 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.

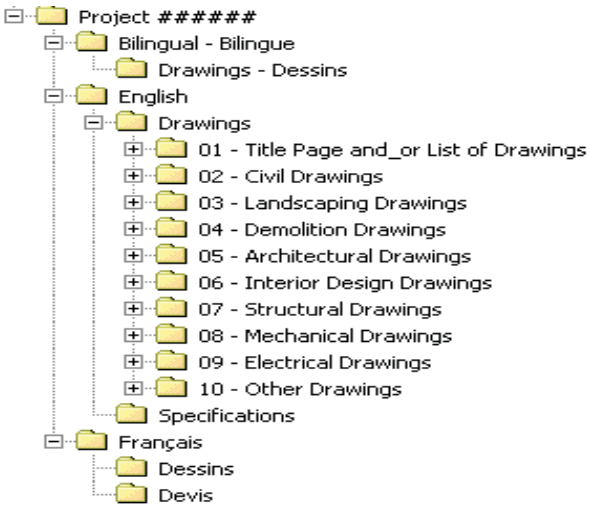
.3 Note:

.1 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.

.4 Examples of 4th Tier sub-folders for drawings:



or



D1.6 NAMING CONVENTION - 4TH TIER DRAWINGS

.1 The 4th Tier sub-folders for drawings must adhere to the following standard naming convention.

.1 For the "*Drawings*" and "*Dessins*" folders:

1 ## - Y, Where:

1 ## = A two digit number ranging from 01 to 99 (leading zeros must be included)

2 Y = The title of the folder

2 Example: 03 – Mechanical

.2 For the "*Drawings - Dessins*" folder:

1 ## - Y – Z, Where:

1 ## = A two digit number ranging from 01 to 99 (leading zeros must be included)

2 Y = The English title of the folder

3 Z = The French title of the folder

2 Example: 04 - Electrical – Électricité

.2 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.

.3 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:

.1 The alphanumerical sorting is done on an ascending order;

.2 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…);

.3 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

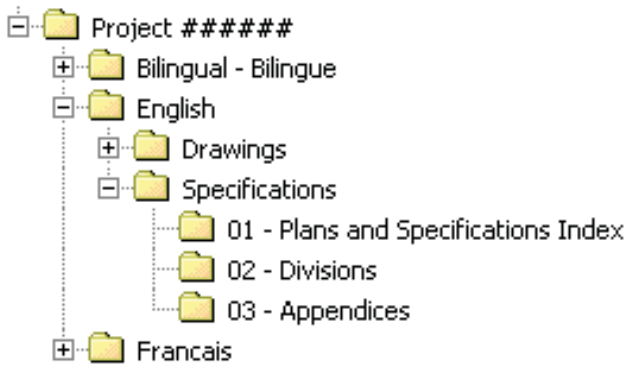
(i.e. Drawing A001 will be printed before Drawing A002, Drawing M02 before Drawing M03, etc…).

D1.7 4TH TIER SUB-FOLDERS FOR SPECIFICATIONS

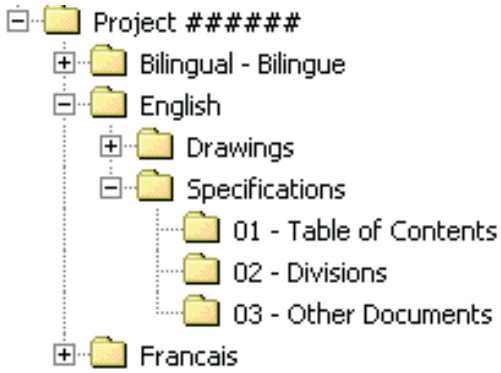
.1 The "*Specifications*" and "*Devis*" folders must have 4th Tier sub-folders created to reflect the various elements of the specifications.

.2 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.

.3 Examples of 4th Tier sub-folders for specifications:



or



D1.8 NAMING CONVENTION - 4TH TIER SPECIFICATIONS

.1 The 4th Tier sub-folders for specifications must adhere to the following standard naming convention.

.1 For the "*Specifications*" and "*Devis*" folders:

1 ## - Y, Where:

1 ## = A two digit number ranging from 01 to 99 (leading zeros must be included)

2 Y = The title of the folder

2 Example: 02 – Divisions

.2 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.

.3 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:

.4 The alphanumerical sorting is done on an ascending order;

.1 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…);

.2 Each specifications PDF file within each sub-folder will also be sorted alphanumerically.

1 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…).

D1.9 NAMING CONVENTION FOR PDF FILES

.1 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.

D1.10 DRAWINGS

.1 Each drawing must be a separate single page PDF file.

.2 The naming convention of each drawing must be:

.1 X### - Y, Where;

1 X = The letter or letters from the drawing title block ("*A*" for Architectural or "*ID*" for Interior Design for example) associated with the discipline,

2 ### = The drawing number from the drawing title block (one to three digits),

3 Y = The drawing name from the drawing title block (for bilingual drawings, the name in both English and French is to appear).

.2 Example; A001 - First Floor Details.

.3 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.

.4 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).

.5 The following important points about drawings are to be noted:

.1 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.

1 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);

.2 If drawing PDF files are included in the "*Bilingual - Bilingue*" folder, these cannot be included as well in the "*English*" and/or "*Français*" folders;

.3 If drawings not associated with a particular discipline are not numbered (Title Page or List of Drawings for example), these will be sorted alphabetically.

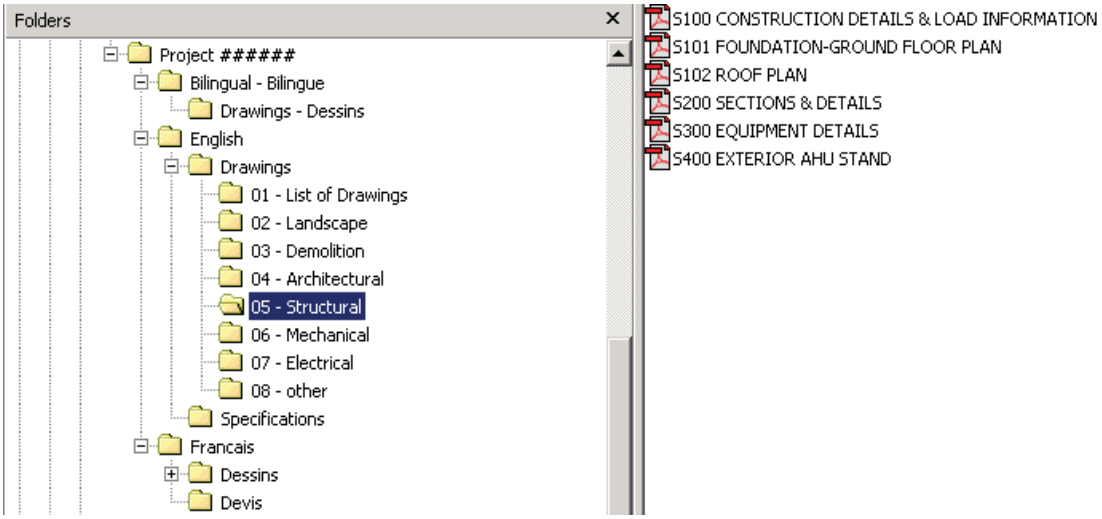
1 While this does not represent a problem if there is only one drawing in the sub-folder, it could disrupt the order when there are two or more drawings. If the alphabetical order of the drawings name does not represent the order on the

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.

1 ## - Y, Where:
  1 ## = A two digit number ranging from 01 to 99 (leading zeros must be included)
  2 Y = The name of the drawing
2 Example:
  1 01 - Title Page
  2 02 - List of Drawings

.4 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.

D1.11 EXAMPLE OF A 4TH TIER DRAWINGS SUBFOLDER'S CONTENT:



D1.12 SPECIFICATIONS

.1 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).

.2 The Plans and Specifications Index must also be a separate PDF file.

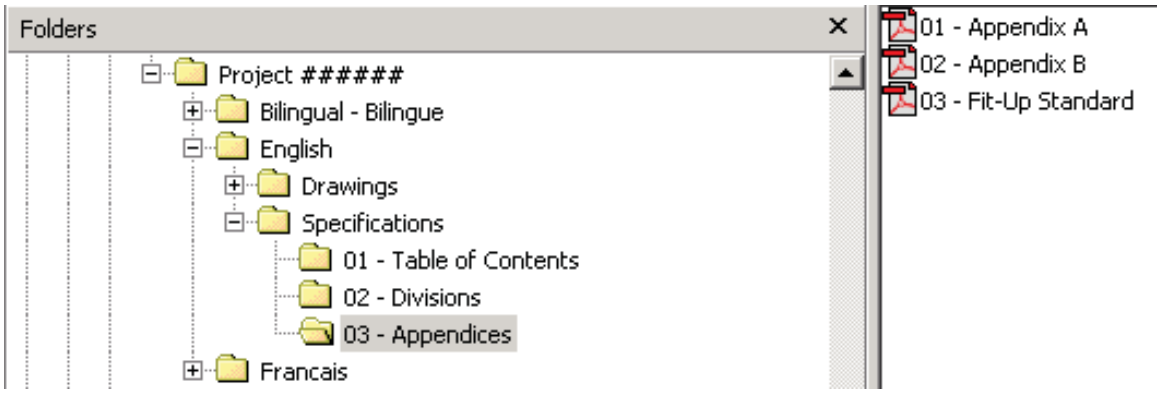
.3 If there are other documents that are part of the Specifications (e.g. Appendix or other) these are to be separate PDF files as well.

D1.13 DOCUMENTS OTHER THAN SPECIFICATIONS DIVISIONS

.1 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:

  .1 ## - Y, Where:
    1 ## = Two digit number ranging from 01 to 99 with leading zeros required
    2 Y = Name of the document
  .2 Example: 01 - Plans and Specifications Index

D1.14 EXAMPLE OF A SUB-FOLDER CONTENT (SUB-FOLDER OTHER THAN "*DIVISIONS*"):



D1.15 SPECIFICATIONS DIVISIONS

.1 The Specifications Divisions must be named as follows:

.1 Division ## - Y, Where:

1 Division ## = The actual word "*Division*" followed by a space and a two digit number ranging from 01 to 99 (with leading zeros required)

2 Y = Name of the Specifications Division as per CSC/CSI MasterFormat™

.2 Example: Division 05 – Metals

.2 The following important point about specifications is to be noted:

.1 The Numbering of the Divisions cannot be altered from CSC/CSI MasterFormat™ even if some Divisions are not used in a given project.

1 For example, Division 05 will always remain Division 05 even if Division 04 is not used for a given project.

D1.16 EXAMPLE OF A "*DIVISIONS*" SUB-FOLDER CONTENT:

D1.17 CD-ROM LABEL

.1 Each CD-ROM is to be labelled with the following information:
  .1 Project Number;
  .2 Project Title;
  .3 Documents for Tender;
  .4 CD *X* of *X*.

.2 Example:
  .1 Project 123456;
  .2 Repair Alexandra Bridge;
  .3 Documents for Tender;
  .4 CD 1 of 1.

APPENDIX E PDF CREATION STANDARDS

E.1 CONVERTING CONSTRUCTION DRAWINGS INTO PDF

E1.1 REFERENCE GUIDE

.1 Refer to the basic reference guide on converting construction drawings into portable document format (PDF), Issued by Real Property Contracting Directorate. PWGSC, Version 1.0, May 2005.

E1.2 PREFACE

.1 Portable Document Format (PDF) is the standard format for documents that are posted on the Government Electronic Tendering System (GETS).

.2 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.

.3 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.

.4 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.

.1 It actually should not take any longer than it would take to create a plot file or to send a drawing to a printer.

.2 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.

.3 The conversion of specifications is not covered in this basic reference guide since it does not require any special configuration or setting.

.5 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.

.1 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.

E1.3 PRINTER DRIVERS

.1 Adobe Acrobat provides two different printer drivers that are able to convert CADD drawing into PDF format, Acrobat PDF Writer and Acrobat Distiller.

.2 Before creating a PDF file from a CADD drawing, a choice must be made as to which one will be used.

.3 Acrobat PDF Writer is a non-PostScript printer driver that works best with documents that don't contain complex graphics.

.4 Acrobat Distiller is a PostScript printer driver that works best with documents that contain PostScript fills, Encapsulated PostScript (EPS) graphics, or other complex elements.

.5 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.

E1.4 PRINTER CONFIGURATION

.1 Before converting a CADD drawing to PDF, an Acrobat printer configuration file for the PDF paper size needs to be created.

.2 This function can be done in the CADD software rather than using a custom paper size defined for the Acrobat distiller feature.

.3 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.

.4 The configuration can then be re-used to simplify the conversion process for future files that use the same page size.

.5 As an alternative, although not recommended, a custom-defined size can be created in Acrobat Distiller in the *properties* menu.

E1.5 CREATING PDF FILES

.1 Once the printer configuration has been done in the CADD software, open Acrobat Distiller and make the necessary settings in the *preferences* and *job options* sub-menu.

- .1 Ensure that the page size match the sheet size selected in the CADD software to create the file.
- .2 Particular settings can be saved under different names for future use.

.2 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.

.3 A progress bar will show during the conversion and the newly converted PDF file should open up and be displayed for verification.

E1.6 PDF FILES SETTINGS

.1 Security

- .1 Adobe Acrobat contains security features that can de used to secure the files by restricting any changes to the files.
- .2 Since the files will be posted on MERX and will be used for printing copies, the files must not be password protected and must allow printing.

E1.7 DRAWING ORIENTATION

.1 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.

E1.8 FONT TYPE

.1 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.

E1.9 RESOLUTION

.1 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).

E1.10 SCALE

.1 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.

E1.11 SCANNING

.1 Scanning is not recommended and should be done only when the drawing is not available electronically.
.2 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.
.3 It is recommended that each scanned drawing be opened and verified to ensure that the resolution, scale and border are of an acceptable quality.

E1.12 FINAL CHECKLIST

.1 When the drawing file has gone trough the PDF conversion, it is recommended to open it and verify the following:
  .1 That the sheet size displayed is what was intended to be created (the size is viewable in the lower left corner of the drawing);
  .2 That the orientation of the sheet is correct;
  .3 That the line types, line weights and fonts match the CADD drawing.
  .4 That the PDF file is in black and white;
  .5 That each drawing is a single PDF file;
  .6 That the PDF file is not password protected and printable.
.2 If all the items are verified, the PDF file is useable.

E1.13 ADDITIONAL INFORMATION

.1 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.

APPENDIX F DEFINITIONS

F.1 TERMINOLOGY

TERMS	DESCRIPTION
As-builts/Record Drawings	See Record Drawings
Base Building	Refers to the building shell, as opposed to the tenant fit-up. It includes finished floors, exterior walls, interior core, finished ceilings with lighting, and other building systems for the planned general use of the building. Generally, the work for the base building is separate from the work for tenant-fit-ups
Circulation	Space used, primarily by people, to move from one area to another. It includes major as well as secondary aisles.
Client	A term that refers to the client, the client department or user department
Co-location	Placing items together for better organization
Consultant	The word refers both to an individual consultant, or a consultant team. The consultant is generally selected by PWGSC using a Request for Proposal.
Contractor	The company, organization or firm who is responsible for the construction of the project
Consolidation	Reducing the number of co-located items by placing them in a common floor facility to eliminate duplication of space.
Constant dollar estimate	This is an estimate expressed in terms of the dollars of a particular base fiscal year.
Cost Specialist	Refers to the cost estimating, planning and control team or an individual performing these functions.
Current dollar estimate	Refer to: *budget year dollars*
Budget-year dollars	This is an estimate based on costs arising in each FY of the project schedule, which is escalated to account for inflation and other economic factors affecting the period covered by the estimate ***Budget year*** dollars is also be referred to as ***Nominal*** dollars or ***Current*** dollars
Departmental Representative	The person designated in the contract, or by written notice to the Consultant or Contractor, to act for PWGSC for the purposes of the contract. It can also be a person designated in writing by the Departmental Representative to act on his/her behalf. In most cases, the PWGSC Project Manager is the Departmental Representative
EMV	Expected monetary value of risk event (i.e. cost or saving to the project if risk event occurs)

Final Certificate of Completion	A document issued by the Project Manager after the final inspection by the Project Acceptance Board. The final payment to the Contractor by PWGSC is based on the final certificate of completion
Final Inspection	The inspection performed by the Project Acceptance Board after project completion and after correction of deficiencies identified during Interim Inspection
Fit-up for initial occupancy	The preparation of accommodation for initial occupancy, in accordance with the federal Fit-up Standards. This fit-up may include alternations to the base building and its building systems.
Fit-up of existing space for reuse, Refit	Work required to alter space previously occupied by one organization to meet the requirements of a different organization.
Fit-Up Cost Limits	The funding limits for the fit-up of office accommodation. The limits are based on the average cost per useable square meter, for fit-up elements in specific urban centres across Canada, and are updated from time to time. The limits do not include soft costs or items funded by clients or under base building costs.
Fit-Up Items	Components that are installed removed or relocated to prepare the space for occupancy. They include partition walls, doors, frames, hardware, counters and cabinetry, modifications to base building systems, etc. as detailed in the Fit-up standards. Some base building components are included in consultant scope of work, such as the flooring and the ceiling finishes or telecommunications spaces and related environmental controls.
Focus Group	Group sessions held to establish qualitative requirements. They are most effective at the strategic planning level. They are used primarily to translate the Client Department's mission statement into organizational requirements and to assess planning alternatives
Full-time equivalent.	It measures of labour utilization in the federal government which approximates the actual number of persons "employed" by the government for carrying out the unit of work
Functional space equation	Identifies space requirements (in usable m^2) by group along with summary of the total space required for all groups.
Gross Space	The total floor space
High risk	A project (or element of a project) may be assessed as high risk if one or more hazards exist in a significant way and, unless mitigated, would result in probable failure to achieve project objectives
Impact	The result of the occurrence of an event on the project either positive or negative (i.e. a schedule delay as a result of late delivery of a piece of equipment may have a high negative impact on a project; increased access to a construction site due to early departure of occupants in an office space may have positive

	impact on a project). The Impact of individual Risk Events can be qualified as low, medium, high or quantified in terms of time, cost (immediate cost or in-service cost (O&M)) or performance.
Interim Certificate of Completion	The certificates issued by Project manager following the Interim Inspection. Interim payment to the Contractor by PWGSC is based on the interim certificates. This payment takes place of a regular progress claim.
Interim Inspection	The inspection performed by the Project Acceptance Board after substantial completion of the project. A list of deficiencies is prepared, and subject to the Contractor's agreement to correct these, the Project Manager accepts the work and prepares the interim certificates
LEED®	Leadership in Energy & Environmental Design; an environmental rating system
Low risk	A project (or element of a project) should be assessed as low risk if hazards do not exist or have been reduced to the point where routine project management control should be capable of preventing any negative effect on the attainment of project objectives
Medium risk	A project (or element of a project) may be assessed as medium risk if some hazards exist but have been mitigated to the point that allocated resources and focused risk management planning should prevent significant negative effect on the attainment of project objectives
National Project Management System	The system used by PWGSC for management of its projects. It replaces the earlier Project Delivery System (PDS).
PI Forms	Product Information forms; used in commissioning documentation
Probability	The likelihood that an event will occur (i.e. Low, Medium, High)
Project Acceptance Board	A team assembled by the Project Manager to perform interim and final inspections of the Client Department's improvements.
PV Forms	Performance Verification forms; used in commissioning documentation
Record drawings	Drawings used to record field deviations, dimensional data, and changes or deviations from the 'Construction Document-Issued for Construction'. They indicate the work as 'actually' installed. They are also called as-builts
Rentable Space	Usable space plus space occupied by columns, convectors, elevator lobbies and washrooms. It also includes some common base building areas such as telephone and janitorial closets.
Request for Proposal	The document used for requesting consultant services. It includes the Terms of Reference as well as other contracting documents

Risk management	The art and science of identifying, analysing, and responding to risk factors throughout the life of a project and in the best interests of its objectives
Risk Event	A discrete occurrence that may affect the project for better or worse (i.e. late delivery of a piece of equipment is a "risk event" that may cause a schedule delay)
Scheduler	Refers to the Time Scheduler; also referred to as Time Specialist
Space Equation	A spreadsheet that reflects the Client's organizational structure, functional requirements, and proposed planning alternatives. It is used to determine the total usable area required to accommodate the following: Open and enclosed workstations/worksettings; Support space; Special purpose space circulation factor; Building loss factor; Total population; and Total space required; and Summary by group
Space Optimization	Maximizing the utilization of space.
Special Purpose Spaces	Non-standard spaces required to accommodate activities that are essential to departmental programs. This space is often not suitable for conversion to office accommodation because of its special requirements. Examples include: laboratories, health units or clinics, meeting or training complexes which serve outside groups, processing space, departmental libraries, gymnasiums, warehouses, file or storage areas not allowed by the PWGSC Fit-Up Standards, trade shops, mailrooms, computer training rooms, cash offices and similar spaces requiring special service and security features and hearing rooms.
Support Space	Space for typical office support functions not included in workstation or circulation space but necessary for office operation. The Fit-Up Standards identify specific sizes and ratios for kitchenette / recycling centre / lunchroom / resource areas, shared equipment spaces, meeting rooms, quiet / touch down rooms, printer stations, reception / mail drop / waiting / display areas and coat / storage closets. Limited allowances for "Other" support spaces including non-dedicated workstations, storage rooms, LAN rooms, breakout rooms, interview rooms, training rooms, reading rooms etc. are also identified in the Fit-Up Standards.
Terms of Reference	A document prepared by PWGSC when requesting Consultant services, which forms part of the RFP and is also included in the Consultant Agreement with PWGSC.
Universal Footprint	One standard module which can be multiplied to accommodate

	all office functions including workstations, support space and special purpose space
Usable space, "Walk-on" Space	The space, in M^2, that is actually usable by the occupant. Measurement calculations do not include columns and convectors, building service areas and accessory areas.
Worksettings	Common work areas that support both collaboration and privacy. They include: teaming areas, non-dedicated workstations, privacy nooks, resource areas and multipurpose areas.
Workstations	An enclosed or open area dedicated for the use of individual employees.

F.2 ACRONYMS

ACRONYM	DESCRIPTION
A&E	Architecture & Engineering
AHJ	Authorities Having Jurisdiction
AMP	Asset Management Report
ASAE	American Society of Agricultural Engineers
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASPE	American Society of Plumbing Engineers
BCC	Building components and connectivity
BCR	Building Condition Report
BMM	Building Maintenance Manual
CAD	Computer aided drawing
CCDC	Canadian Construction Document Committee
CBIP	Commercial building incentive program
COE	PWGSC Centre of Expertise
EMCS	Energy Monitoring & Control System
EPA	Effective Project Approval
FHBRO	Federal Heritage Building Restoration Office
FOBS	Federal Office Building Standards (PWGSC)
FTE	Full-time equivalent
HCP	Heritage Conservation Program
HRSDC	Human Resources and Skills Development Canada
IT/MM	Information Technology/Multi-media
MMS	Maintenance management system
NBC	National Building Code
NCA	National Capital Area;
NCR	National Capital Region;
NFBC	National Farm Building Code
NGMA	National Greenhouse Manufacturers' Association
NMS	The National Master Specification used by PWGSC

NPMS	National Project Management System
OAA	Ontario Association of Architects
O&M	Operation and Maintenance
P&S	General Procedures and Standards
PA	Project administration
PI	Product Information
PD	Project Description
PM	Project Manager
PV	Performance verification
PWGSC	Public Works and Government Services Canada
RAIC	Royal Architectural Institute of Canada
RAS	Requirements and Standards
RS	Required Services
RSR	Resident site services
RPCD	Real Property Contracting Directorate
TOR	Terms of Reference

TERMS OF REFERENCE

DEW LINE LANDFILL MONITORING PROGRAM

- BAR-2 SHINGLE POINT, YT
- PIN-M CAPE PARRY, NT
- PIN-1 CLINTON POINT, NT

DEW LINE SITES, INUVIALUIT SETTLEMENT REGION
YUKON AND NORTHWEST TERRITORIES

DND PROJECT #: ISR17

ON BEHALF OF
THE DEPARTMENT OF NATIONAL DEFENCE
GOVERNMENT OF CANADA

BY

PUBLIC SERVICES AND PROCUREMENT CANADA
EDMONTON, ALBERTA

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1. PURPOSE

These Terms of Reference (TOR) have been developed by the Department of National Defence (DND) to solicit consulting services for the collection of post-closure long term monitoring (LTM) data for a total of 12 landfill sites and one drainage channel located at the following three former Distant Early Warning (DEW) Line Clean-Up Sites in the Inuvialuit Settlement Region (ISR) of the Yukon (YT) and the Northwest Territories (NT):

- BAR-2 Shingle Point, YT (4 landfill sites);
- PIN-M Cape Parry, NT (2 landfill sites); and,
- PIN-1 Clinton Point, NT (6 landfill sites and 1 drainage channel).

2. BACKGROUND

2.1 In the 1950s, DEW Line sites were constructed along the latitudes of 65 to 70 degrees to maintain surveillance of the North American Airspace. Technology upgrades led to the closure of most of these sites and replacement with the North Warning System (NWS). Since the 1990s, investigations, decommissioning, and clean-up activities have been undertaken at the former DEW Line sites.

2.2 Clean-up and decommissioning activities involved the demolition of surplus buildings and structures, excavation of contaminated soils, and the retrofit of existing landfills. New engineered landfills were also constructed for the disposal of excavated soils and building material debris.

2.3 The remaining landfills at DEW Line sites can be categorized as follows:

- **Regraded:** Existing landfills that were regraded and capped with gravel;
- **Leachate Contained:** Existing landfills that were capped with gravel and provided with an impermeable membrane keyed into the permafrost to contain leachate (membranes may cover the entire landfill surface or only the sides). Sufficient cover of granular material was placed to promote permafrost aggradation throughout the landfill contents;
- **NHWL:** New non-hazardous waste landfills; and,
- **Tier II:** New landfills used for the disposal of Tier II contaminated soils (as defined by the DEW Line Clean-Up Criteria) were constructed with an impermeable liner underneath and on top, as well as saturated granular fill berms keyed into the permafrost, to encapsulate the contents and contain leachate. Sufficient cover of granular material was placed to promote permafrost aggradation into the saturated berms and throughout the landfill contents.

2.4 DND, in cooperation with the Inuvialuit Regional Corporation (IRC), has developed a Landfill Monitoring Program to address post-closure monitoring requirements for the landfills at the DEW Line sites within the ISR. The monitoring schedule for sites covered under this contract is presented in **Figure 1** and monitoring requirements are summarized in **Table 1**.

Figure 1: Monitoring Schedule for Contract ISR17

DEW Line Site	2017
BAR-2 Shingle Point, YT	Year 16*
PIN-M Cape Parry, NT	Year 19**
PIN-1 Clinton Point, NT	Year 15

** Year 15 monitoring did not take place in 2016; Year 16 monitoring will be undertaken in 2017 instead.*
*** The scope for PIN-M is limited to specific visual inspection and sampling at the Station Area Landfill and Extension, and visual inspection at the Main Landfill – West.*

Table 1: Summary of Landfill Monitoring Requirements for Contract ISR17

Landfill Designation	Type of Landfill	Visual Inspection	Soil Sampling[1]	Groundwater Sampling[2]	Thermal Monitoring[2,3]	
		✔ = Yes	# Locations	# Locations	# Thermistors	Thermistor Maintenance[4]
BAR-2 Shingle Point						
NWS Landfill	Regraded	✔	4 x 2			
Ravine Landfill	Regraded	✔	4 x 2			
Station Area Landfill	NHWL	✔	4 x 2	4		
USAF Landfill	Leachate Contained	✔	6 x 2	6	8	Replace batteries; re-program dataloggers; re-install thermistor IT-6
TOTAL		***4***	***36***	***10***	***8***	***8***
PIN-M Cape Parry						
Station Area Landfill and Extension	Regraded and NHWL	✔	5 x 2	5		
Main Landfill – West	Regraded	✔				
TOTAL		***2***	***10***	***5***		
PIN-1 Clinton Point						
Station Area Landfill – Northwest	Regraded	✔	5 x 2			
Non-Hazardous Waste Landfill	NHWL	✔	4 x 2	4		
Station Area Landfill – Southwest	Regraded	✔	5 x 2			
Beach Landfill – South	Regraded	✔	3 x 2			
Beach Landfill	Regraded	✔	4 x 2			
Beach Landfill – North	Leachate Contained	✔	5 x 2	4	7	Replace batteries; re-program dataloggers
Drainage Channel	N/A	✔				
TOTAL		***7***	***52***	***8***	***7***	***7***

1. (# x #) Indicates approximate number of sampling points at each landfill and the requirement to collect samples from two depths at each sampling point: from 0-15 cm and from 40-50 cm (or at refusal; see Section 5.4).
2. Bolt cutters and spare locks (makes/models to be specified by DND) should be brought to replace damaged/seized locks.
3. Two extra sets of datalogger batteries should always be brought during the monitoring program to troubleshoot malfunctions.
4. Programming instructions to be provided by DND or the datalogger manufacturer (Lakewood Systems Ltd.).

3. OBJECTIVE

3.1 The objective of the DEW Line Landfill Monitoring Program is to collect sufficient information to assess the performance, integrity, and stability of the landfills from a geotechnical and environmental perspective for the protection of human health and the environment. The Scope of Work for landfill monitoring (Section 5) specifies the requirements for visual inspection/photographic records, soil and groundwater sampling and chemical analyses, and thermal monitoring of landfills at the DEW Line sites. In order to properly assess ongoing landfill performance from year to year, it is critical that monitoring inspections be conducted by qualified professionals, be extremely thorough, and be completed in a consistent manner for each monitoring event. Final reports, analytical data, assessments, conclusions and recommendations will be vetted by an independent team of qualified professionals and will be provided to various stakeholders. **All deliverables under this contract must be written in English** in order to enable this review.

3.2 The monitoring program involves both geotechnical and environmental evaluation activities. Conclusions and recommendations regarding the performance of the landfills should take into consideration current and historical trends of the following elements, which should be assessed conjointly:

- Visual monitoring;
- Soil and active layer groundwater monitoring and chemical analyses;
- Thermal monitoring; and,
- Photographic records.

3.3 The DEW Line Landfill Monitoring Program is subdivided into 3 phases:

- Phase I (yearly for the first 5 years following clean-up completion);
- Phase II (Years 7, 10, 15 and 25); and,
- Phase III (to be determined after Year 25).

3.4 These TOR are for Phase II long term monitoring activities to be performed at former DEW Line sites located in the Inuvialuit Settlement Region in 2017, in accordance with the schedule outlined in **Figure 1** and the requirements identified in **Table 1**.

4. SITE INFORMATION

Specific information on each DEW Line site and on individual landfills to be monitored as part of this contract is presented in **Annexes A to C**. A summary of site-specific logistical constraints is provided in **Table 2** below.

Table 2: Site-Specific Logistical Constraints

Site Name[1]	Site Access	On-Site Accommodations[2]	On-Site Transportation	Road Conditions	Escort Required?[3,4]
BAR-2 Shingle Point	Access via charter aircraft (fixed wing or helicopter). Runway conditions unknown.	Active NWS site. On-site accommodations potentially available; must be confirmed with Raytheon.	No on-site transportation available.	Road conditions unknown.	No
PIN-M Cape Parry	Access via charter aircraft (fixed wing or helicopter). Runway conditions unknown.	Active NWS site. On-site accommodations potentially available; must be confirmed with Raytheon.	No on-site transportation available.	Road conditions unknown.	No
PIN-1 Clinton Point	Access via charter aircraft (fixed wing or helicopter). Runway conditions unknown; soft areas reported during 2015 site visit.	No NWS site. No on-site accommodations available.	No on-site transportation available.	Road conditions unknown.	No

1. For each site visited, a waiver may be required (to be confirmed by DND project manager prior to field program). If such a waiver is required, it must indicate that visitors will not willfully or knowingly damage site infrastructure and must be signed by the consultant's project manager and submitted with the logistics plan prior to the field program. The waiver must also be completed and signed at the beginning of each site visit by all visitors (e.g., consultants, subcontractors, pilots, wildlife monitors, etc.) who will be on site for any purpose related to this contract. The same waiver can be signed by all visitors as long as all required information is clearly displayed. The completed/signed waiver must be provided as part of the field work progress report.

2. The North Warning System (NWS) sites are currently under the care, custody and control of Raytheon Canada Ltd. (Raytheon). If the consultant intends to include the use of on-site accommodations/facilities in their proposal, it is the consultant's responsibility to confirm in writing with Raytheon whether or not accommodations/facilities will indeed be available in 2017 at the sites covered under this contract, and what the associated costs and access/escort requirements would be. The consultant will be solely responsible for coordinating all logistics with Raytheon and covering all costs associated with use of on-site accommodations/facilities.

3. At the time of writing these TOR, it is DND's understanding that no escort from Raytheon will be required in 2017 at the sites covered under this contract, provided that the consultant will not be accessing any NWS accommodations/facilities.

4. Should an escort from Raytheon be required because the consultant proposes to access NWS accommodations/facilities during the field program, it will be the consultant's responsibility to coordinate all associated logistics with Raytheon and to cover all costs associated with the escort (e.g., transportation, fees, meals, lodging, etc.).

5. LANDFILL MONITORING REQUIREMENTS

5.1 *General Scope of Work and Project Team Requirements*

5.1.1 Collect visual, chemical, thermal and photographic records at the DEW Line landfill sites in accordance with these TOR.

5.1.2 In the event that site conditions warrant deviations from this document, written and/or verbal approval by the DND project manager is required.

5.1.3 The work is to be performed by a project team comprised of the following staff (refer to **Appendix F of the RFP** for evaluation criteria):

a) Senior Environmental Professional/Project Manager;
b) Senior Geotechnical Engineer/Project Manager;
c) Geotechnical Field Staff Lead;
d) Environmental Field Staff Lead; and,
e) Field Assistants.

5.1.4 The **Project Manager** must either be the **Senior Environmental Professional** or the **Senior Geotechnical Engineer** presented as part of the project team.

5.1.5 In order to encourage Inuvialuit participation, **Field Assistants** need not have pertinent experience as long as they are directly supervised in the field by the **Environmental and/or Geotechnical Field Staff Lead(s)** to ensure compliance with all technical requirements.

5.1.6 The collection, reporting and interpretation of all field data must be overseen, reviewed, validated and signed off on by the **Senior Geotechnical Engineer** and the **Senior Environmental Professional** identified as part of the project team in the proposal.

5.1.7 It is not mandatory for the **Senior Geotechnical Engineer** and the **Senior Environmental Professional** to be on the field team, provided that they remotely supervise the **Geotechnical and Environmental Field Staff Leads**, who are responsible for ensuring the quality of the field work and for following the directions and guidance provided by the **Senior Geotechnical Engineer** and the **Senior Environmental Professional.**

5.1.8 The scope of this contract must be performed by the key personnel who are identified in the consultant's proposal. In the event that a team member is not available to conduct the work due to circumstances out of the consultant's control (e.g., unplanned leave or an individual is no longer employed by the firm), the curriculum vitae of an equally qualified individual, meeting the above qualifications requirements, shall be provided to DND/PSPC for approval.

5.2 *Visual Inspection*

5.2.1 Carry out a visual inspection of each landfill in accordance with these TOR; this scope of work must be completed by a Geotechnical Engineer (either the **Geotechnical Field Staff Lead** or the **Senior Geotechnical Engineer**) identified in the proposal submission.

5.2.2 The physical integrity of each landfill is to be inspected and reported on. Record all observations, including dimensions, and document the location of each feature and its extent and/or circumference using a GPS (at a minimum of 0.5-1 m intervals), noting significant changes in direction. Note the depth of ponded water, where observed. Note the make, model and accuracy of the GPS equipment. The location of each feature should also be referenced to existing monuments surveyed during construction and shown on as-built drawings (e.g., monitoring wells, thermistors, etc.) to confirm the accuracy of the GPS measurements.

5.2.3 Document each feature using the Visual Inspection Checklist (**Annex J1**). Compare each feature to historical visual observations (to be provided to the successful proponent) and compare the magnitude/severity/extent of features over time. A new name shall be provided for each new feature (do not reuse names previously used for other features that are no longer apparent on site). Using the existing figures provided (**Annexes A to C**), document all observations on detailed field markups of paper and/or electronic copies of the figures (i.e., on field tablet devices).

5.2.4 Photographic records are to be taken (see Section 5.9), from ground and air, to document the general condition of each landfill and substantiate all recorded observations, including observations of no identified concern.

5.2.5 Inspect the condition of monitoring wells and thermistors associated with each landfill. If possible, make necessary repairs during site visit; otherwise, note and photograph any damage and specific repair requirements to ensure that sufficient information is available to allow for contracting out repair work. Complete all relevant fields in the attached templates (**Annexes J1, J3 and M**).

5.2.6 Historical data is to be incorporated into the monitoring report for each landfill. Evaluation of the visual inspection results will include a comparative analysis of existing features to features noted during previous monitoring events and a description of any changes, and their potential significance/impact on stability.

5.2.7 Provide a detailed figure of each landfill area using the existing base drawings for reference. Identify all features noted on the Visual Inspection Checklist (**Annex J1**), as specified above. Illustrate features to scale, show differences from previous years with the use of visual tools (e.g., colour). Provide updated AutoCAD layers (see Section 7.7).

5.3 *General Chemical Monitoring Requirements*

5.3.1 The soil and active layer groundwater monitoring program consists of the collection, analysis, and interpretation of soil and active layer groundwater samples at pre-determined locations (see **Annexes A to C**).

5.3.2 Historical data will be provided in Excel format to the successful proponent. Current and historical chemical data is to be assessed against:

a) Background data;
b) Baseline data;
c) Baseline data plus 3 standard deviations; and,
d) Data from previous years of monitoring.

5.3.3 The Excel document will contain worksheets with instructions and historical soil and active layer groundwater results for each landfill. The worksheets may be locked, and chemical data need to be copied and pasted in the correct order to the appropriate rows from laboratory certificates of analysis. It is recommended that contracts with the laboratories include a requirement for electronic reporting of results in the format (parameter order) outlined in the Excel worksheets to minimize errors and facilitate worksheet population. The Excel worksheets also contain pre-populated trend graphs and data tables which are to be printed and included as an appendix to the monitoring reports. Data trends should be interpreted and discussed within the monitoring reports.

5.3.4 Chemical concentrations are to be reported in the pre-programmed Excel worksheets provided. Concentrations detected above comparison values outlined in Section 5.3.2 are to be flagged in the tables, on landfill plans/figures and are to be discussed within the report.

5.3.5 Petroleum hydrocarbon (PHC) fractions F1-F4, represented as F1 (C6 to C10), F2 (>C10 to C16), F3 (>C16 to C34), and F4 (>C34), are defined by the CCME *Reference Method for the Canada-Wide Standards for Petroleum Hydrocarbons in Soil – Tier I Method* (2001, and updates).

5.3.6 In the analytical data summary tables, sum the PHC fractions F1-F3 to obtain an analogous total petroleum hydrocarbon (TPH) concentration for information purposes. Clearly describe the analogous TPH result as being different from an analyzed TPH result and/or field test kit TPH result.

5.3.7 Results for duplicates, blanks and PHC fraction F4 must be shown in separate tables (to be developed by the consultant) within the report. The F4 fraction results are not included in the Excel worksheets as there is no baseline to compare them to.

5.3.8 Collect samples in laboratory-supplied containers for the parameters being analyzed. Store and ship samples in coolers at appropriate temperatures in accordance with laboratory requirements. Utilize sufficient packing material to ensure that sample containers do not break during transport. Utilize laboratory chain of custody forms.

5.3.9 **Make every effort to ensure sample hold times are not exceeded**.

5.3.10 All sampling techniques must conform to Canadian Council of Ministers of the Environment (CCME) *Guidance Manual For Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment* (2016 or most recent) and industry best practices (whichever is more stringent) and are to be outlined in the proposal. Any deviation from this guidance must be accepted in writing by the DND project manager prior to implementation. **NOTE:** Certain protocols/procedures outlined in these TOR (e.g., Sections 5.5.6 and 5.5.7) are specific to the current approach to DEW Line monitoring and must be followed, even though they contradict the CCME guidance and/or the *Cooperation Agreement Between the Inuvialuit Regional Corporation and the Department of National Defence Concerning the Restoration and Clean-up of DEW Sites Within the Inuvialuit Settlement Region* (**Annex S**).

5.3.11 Collect soil and groundwater samples with new, contaminant free, single use disposable sampling utensils, and/or equipment decontaminated utilizing fluids appropriate to the parameters being sampled. **Sampling equipment must be disposed of or decontaminated between each sampling event.** If utilizing decontaminated sampling equipment, address the potential for cross-contamination with appropriate quality assurance/quality control procedures (e.g., equipment blanks). Single use sampling materials are considered waste after use and must be disposed of properly off-site (see Section 6.1.4).

5.3.12 Both the primary laboratory and the one specified for inter-laboratory comparison (see Section 5.7.3) shall be ISO 17025 certified for each element of analysis in each medium required under these TOR.

5.3.13 ***Proof of current ISO 17025 certification for each laboratory, including a complete list of all parameters and all media covered under this contract, must be submitted by the successful proponent within 2 weeks of contract award.*** A letter signed by each laboratory to be used, stating that they are ISO certified for all analysis requested in these TOR for each medium, will suffice.

5.3.14 Method detection limits (MDLs) employed by the laboratories must be lower than the minimum requirements presented in **Annex I**. In the event that the minimum MDLs cannot be achieved due to sample properties, an explanation and justification must be provided along with a discussion of associated impacts of the high MDL on the validity and reliability of the results.

5.4 *Soil Sampling*

5.4.1 Collect soil samples at depths of 0-15 cm and 40-50 cm at the locations indicated in **Annexes A to C**. Use the Soil Sampling Log (**Annex J2**) for each landfill; complete all fields. **Soil descriptions must be noted including any visual or olfactory observations, and discussed in the reports**.

5.4.2 Soil may be partially frozen, and sturdy equipment (e.g., shovel/pick axe) may be required to access soils at depth for sampling. If the specified sampling depth cannot be achieved following a reasonable attempt in the target sampling area, a sample shall be collected at or near the zone of refusal. All sampling depths, as well as reasons for refusal (e.g., boulders, frozen ground, etc.) shall be recorded and reported.

5.4.3 When collecting soil samples at monitoring well locations, collect soil samples within a 2-4 m radius of the well and document the exact sample location with a GPS unit. Do not collect samples immediately adjacent to the well or in previously disturbed locations. Collect soil samples prior to purging wells.

5.4.4 All soil sampling locations must be backfilled at the conclusion of each monitoring event.

5.4.5 Analyze soil samples for the following parameters:

a) PHC fractions F1-F4;
b) Total concentrations of As, Cd, Cr, Co, Cu, Pb, Ni, Zn and Hg;
c) Polychlorinated biphenyls (PCBs) by total Aroclor analysis.

5.4.6 PHC samples can be preserved, if required by CCME and/or to increase hold times. Adhere to the *Transportation of Dangerous Goods Act* and its regulations if PHC samples are to be preserved. Note any use of preservatives when completing the Soil Sampling Log (**Annex J2**).

5.5 *Groundwater Monitoring and Sampling*

5.5.1 Monitor and collect active layer groundwater samples at the well locations indicated in **Annexes A to C**. DND will provide keys to the successful proponent; damaged locks should be replaced as required and should be the same make and model as the existing locks on site (G. Hjukstrom Limited, 7000PS-KA3, 40 mm) to ensure that one key will open all monitoring wells and thermistors on site. The field team should be equipped to cut malfunctioning locks and be prepared to replace all locks on site, if necessary.

5.5.2 At each monitoring well, conduct a visual inspection, measure depth to free product (if present), measure depth to water and complete all fields in the Monitoring Well Sampling Log (**Annex J3**).

5.5.3 Purge monitoring wells prior to sampling; purging and sampling should be conducted using **low-flow techniques** (refer to EPA/540/S-95/504 or most recent) to minimize sediment entrainment. **Maintain purge rate at 100 mL/min or less**. Do not exceed recovery rate.

5.5.4 Monitor and record pH, conductivity, turbidity and temperature during purging. Do not sample groundwater until values for these parameters have stabilized. If the well runs dry during the first attempt, return in subsequent days while still on site, to collect the sample (if possible based on logistics plan). Otherwise, recover un-stabilized sample if possible and ensure that interpretation of results considers the limitations from the sampling event.

5.5.5 **Do not leave sampling materials in wells** (they will freeze and cause damage to the wells).

5.5.6 **Do not field-acidify or preserve samples collected for metals**. PHC samples can be preserved, if required by CCME and/or to increase hold times. Adhere to the *Transportation of Dangerous Goods Act* and its regulations if PHC samples are to be preserved. Note any use of preservatives when completing the Monitoring Well Sampling Log (**Annex J3**).

5.5.7 **Do not filter any of the water samples**, not even those to be submitted for inorganic element analysis (hence the importance of low turbidity in the samples).

5.5.8 Where sufficient groundwater is found, sample bottles are to be filled during a single collection event. Analyze active layer groundwater samples for the following analyses (to be prioritized in the following order, in the event of limited sample quantities):

a) PHC fraction F1;
b) Total concentrations of As, Cd, Cr, Co, Cu, Pb, Ni, Zn and Hg;
c) PHC fractions F2-F4; and,
d) PCBs (total Aroclor analysis).

5.6 *Sampling Additional Areas of Potential Environmental Concern*

5.6.1 The consultant shall ensure to bring sufficient sampling equipment and sample containers to allow for the collection of additional soil and/or surface water samples indicating potential evidence of impact, should they be encountered on or adjacent to the landfills being monitored at the time of the site visit.

5.6.2 The location of these additional samples shall be recorded and a photographic record shall be taken of the potentially impacted media.

5.6.3 These additional samples will be submitted to the laboratory “on hold” until approval has been received by DND to proceed with analysis.

5.7 *Chemical Quality Assurance and Quality Control (QA/QC) Requirements*

5.7.1 Demonstrate that adequate measures will be/have been taken to ensure good QA/QC procedures throughout the course of the project, consistent with the requirements outlined in **Annex K**. This shall be addressed in the proposal submission and work plan, and documented in detail in the monitoring reports.

5.7.2 Establish appropriate QA/QC procedures for soil and active layer groundwater sampling and analyses to ensure accuracy, precision and representativeness of results. The QA/QC program shall include an inter-laboratory comparison of results (see **Annex K**).

5.7.3 Intra-laboratory QA/QC (the same laboratory) does not require additional duplicates as labs perform their own QA/QC on existing samples. For the inter-laboratory comparison (the second laboratory), 10% field duplicates (soil and groundwater) should be analyzed. The consultant must report both sets of results, including all QA/QC measures, and discuss their significance.

5.7.4 The laboratory certificates of analysis should the include the following QA/QC information at a minimum:

a) The condition of the samples they received (e.g., temperature of the cooler, moisture content, legibility of labels, chain of custody, etc.);
b) Sample containers (e.g., appropriateness of containers used, container integrity upon receipt at the laboratory, etc.);
c) Holding times;
d) Head space, and/or use of preservatives (where relevant);
e) Internal laboratory QA/QC, blanks, duplicates, relative percent differences, and any other relevant results or observations that could impact the interpretation of results. All laboratory qualifying data must be reported by the laboratory in the certificate of analysis outlining any limitations or considerations in interpreting results. This shall be discussed in the monitoring reports.

5.8 *Thermal Monitoring*

5.8.1 Geothermal analyses were carried out as part of the design of landfills requiring leachate containment and for Tier II disposal facilities to predict the length of time required for sufficient permafrost aggradation.

5.8.2 The thermal monitoring system consists of thermistor strings (beads), at select intervals, to provide subsurface ground temperatures at various locations within the landfills. The strings are attached to automated dataloggers.

5.8.3 Inspect the condition of the thermistors indicated in **Annexes A to C** and complete all fields on the Thermistor Inspection Template (**Annex M**). Note any damage and specific repair requirements to allow for repair in the future. Record the datalogger manufacturer model and serial numbers.

5.8.4 Bring the datalogger user guide (to be provided to the successful proponent following contract award) and spare batteries to the site. Batteries can be purchased from Lakewood Systems Ltd., the datalogger manufacturer.

5.8.5 DND will provide keys to the successful proponent; damaged locks should be replaced as required and should be the same make and model as the existing locks on site (G. Hjukstrom Limited, 7000PS-KA3, 40 mm) to ensure that one key will open all monitoring wells and thermistors on site. The field team should be equipped to cut malfunctioning locks and be prepared to replace all locks on site, if necessary.

5.8.6 Prior to retrieving data, ensure that personnel are grounded. Retrieval ground temperature data from the thermistor installations at locations indicated in **Annexes A to C** using a personal computer equipped with the appropriate software, cable, and the relevant programming file. **Verify the cable required and obtain one from the manufacturer prior to the field program**.

5.8.7 Translate and view ground temperature data while in the field to ensure completeness. Record a detailed description of any issue encountered.

5.8.8 Take manual readings of the thermistor using a multimeter and a switch box to verify the datalogger recordings (Lakewood Systems Ltd. can be contacted for detailed instructions).

5.8.9 For the first monitoring event completed by the new consultant, measure the distance of the thermistor cable above ground. This is only required for the first monitoring event performed by each new consultant.

5.8.10 Provide photographs of the thermistor conditions, both exterior and interior; interior photographs should document the location/position and condition of the cables within the thermistor casings (see Section 5.9).

5.8.11 Replace datalogger batteries according to the schedule indicated in **Table 1**, as per the following instructions:

a) Retrieve ground temperature data prior to replacing batteries;
b) Replace batteries one at a time. Removing both batteries simultaneously may result in the need to re-program the dataloggers;
c) Describe battery replacement activities, along with the manufacturer's recommended battery replacement date (indicated on battery) on the Thermistor Inspection Template (**Annex M**);
d) Replace desiccant (obtain from the manufacturer); and,
e) Replace the following batteries and desiccant pouches for each thermistor listed in **Table 3**:

Table 3: Battery Replacement Information

Quantity	Battery Type	Model Number
1	9 volt lithium battery (main battery)	ULB1
1	12 volt 15Ah lithium battery (memory power)	ULB15
1	New desiccant	N/A

Note: The lithium memory back-up battery (coin cell) does not require replacement.

5.8.12 In addition to the batteries scheduled for replacement as per **Table 1**, the consultant should bring two sets of spare batteries during each annual monitoring program as a contingency and to troubleshoot any datalogger malfunction.

5.8.13 Note that lithium batteries are considered a dangerous good, and when shipped (even when contained in packed devices and equipment), must adhere to the Transportation of Dangerous Goods Act and its regulations. This must be considered in when developing the logistics plan.

5.8.14 Re-programming of the dataloggers will be required in accordance with **Tables 1 and 4**. The re-programming instructions will be supplied by DND following contract award and technical support can be provided by the manufacturer, if required.

Table 4: Datalogger Programming Information

Monitoring Year	Programming Requirements
Year ≥15	As per DND direction, and manufacturer guidance, re-program the dataloggers to gather readings for specific beads at a set frequency.

5.8.15 Verify and confirm while in the field (verification procedures and confirmation is to be documented in the monitoring report) that the dataloggers are properly functioning. This must be done for every monitoring event and following battery replacement and/or datalogger re-programming.

5.8.16 If the datalogger is non-functioning, and cannot skillfully be repaired in the field, bring it south for repairs by the manufacturer. The datalogger will be reinstalled during the next field monitoring event.

5.8.17 The reinstallation of dataloggers brought south for repairs by previous monitoring consultants is part of the scope of this contract and must be considered in the proposal preparation. At this time, it is expected that IT-6 located at BAR-2 at the USAF Landfill will need to be reinstalled. The datalogger will be provided to the successful proponent at least 6 weeks prior to field work.

5.8.18 Raw thermal data is to be sent to DND for analysis in conjunction with the issuance of the field work progress report. Once analyzed, DND will provide the consultant a copy of thermal results/conclusions/recommendations to be incorporated into the monitoring report.

5.9 *Photographic Records*

5.9.1 Provide photographs of the overall site and of the landfills from the vantage of the aircraft before landing or after take-off, where possible.

5.9.2 Provide a detailed photographic record of the landfills using a digital camera to obtain panoramic and regular views, recording at a minimum, the areas of interest noted in this section and in the Visual Inspection Checklist (**Annex J1**).

5.9.3 Provide photographs to substantiate and document evidence of all landfill features noted in the Visual Inspection Checklist (**Annex J1**) or to confirm the absence of features/issues. Where a noted feature is greater than 10 m in length or width provide a photograph for each 10 m interval. Ensure a sufficient number of photographs are provided to adequately capture the details of the landfill and all features of note.

5.9.4 Provide a photographic record of the condition (exterior and interior) of all monitoring well and thermistor installations. Interior photographs of thermistors should document the location/position and condition of the cables within the thermistor casings. Note and photograph any damage and specific repair requirements to ensure that sufficient information is available to allow for contracting out repair work.

5.9.5 Provide a photographic record of each soil sample location during sampling and after backfilling the test pits.

5.9.6 Ensure that all photographs taken on the ground incorporate a measure of scale (e.g., measuring tape, sampling containers, field books, etc.).

5.9.7 Number each photograph and record viewpoints for each photograph on the associated figure and in the photo description. Where viewpoints from previous monitoring events are provided on site drawings, use the same viewpoints, where applicable. Record GPS coordinates of photographs.

5.9.8 Provide a detailed photo log that records, at a minimum, the following information:

a) Photo reference/number/ID and electronic file name;
b) Date taken;
c) Close up/wide angle/panoramic view;
d) GPS coordinates and/or location where photograph was taken relative to existing monuments or features (e.g., 5 m west of monitoring well X);
e) View direction referenced to magnetic north with specific line of sight identified (e.g., Looking west from monitoring well X to feature Y);
f) Identification of measure of scale incorporated into the photograph; and,
g) Feature(s) of note with clear identification of details (e.g., using arrows on photos as required).

6. GENERAL REQUIREMENTS

6.1 *Miscellaneous*

6.1.1 The work to be carried out under these TOR shall include the furnishing of all management, supervision, labour, materials, equipment, tools, supplies, laboratory analytical reports, disbursements overhead and other incidentals necessary for the satisfactory performance and completion of all work as specified herein.

6.1.2 The overall project management costs should include costs associated with the participation in two annual meetings: 1) a yearly kick-off meeting and 2) a draft report review meeting. The meetings are to be held via teleconference or in person (should the proponent be located in Ottawa/Gatineau). The proponent will be responsible for the preparation of the agenda and record of discussion (ROD) for all meetings. RODs will be expected within **2 weeks** of each meeting.

6.1.3 The consultant is expected to employ satisfactory quality assurance and quality control (QA/QC) measures for all work undertaken within the scope of work specified herein. The consultant must use proven procedures, practices and protocols with satisfactory and acceptable historical performance to ensure the collection and reporting of complete, reliable and accurate information. This will be addressed and reflected in all of the consultant's deliverables and work elements including, but not limited to, the proposal submission, correspondence, field practices, submissions and reports.

6.1.4 All wastes generated during the monitoring events must be removed from the sites at the completion of each site visit and properly disposed of at an approved facility. Although it is not expected that debris/waste will be encountered on site, any debris or garbage that is identified and that can be safely picked up and transported from the site shall be collected and properly disposed along with wastes generated during the monitoring events.

6.2 *Inuvialuit Involvement*

6.2.1 The delivery of the DEW Line monitoring program shall be completed in accordance with the *Cooperation Agreement Between the Inuvialuit Regional Corporation and the Department of National Defence Concerning the Restoration and Clean-up of DEW Sites Within the Inuvialuit Settlement Region* (see **Annex S**, hereinafter referred to as the IRC-DND Cooperation agreement) and the *Inuvialuit Final Agreement (As Amended)*: http://www.irc.inuvialuit.com/about/Inuvialuit%20Final%20Agreement-Amended%20April%202005.pdf. Section 6 of the IRC-DND Cooperation Agreement (Business Opportunities and Commitments) specifically outlines reasonable measures to encourage Inuvialuit business participation that must be followed for this project.

6.2.2 The consultant must provide a **Consultant's Inuvialuit Participation Plan (CIPP)** in accordance with the IRC-DND Cooperation Agreement. The preliminary CIPP**, *submitted with the consultant's proposal***, will outline how the consultant intends to achieve specific targets for Inuvialuit employment and business/contracting opportunities for the contract period, as outlined in Sections 6.2.4 and 6.2.5 below. The CIPP will be revised and finalized prior to the field program.

6.2.3 The detailed **Consultant's Inuvialuit Participation Report (CIPR)** shall outline how the consultant achieved the specific targets for Inuvialuit employment and business/ contracting opportunities for the contract period outlined in Sections 6.2.4 and 6.2.5 below. An updated CIPR will be submitted in conjunction with the draft technical reports to detail Inuvialuit participation in the field program. A finalized CIPR will be submitted along with the finalized technical reports.

6.2.4 The **Minimum Inuvialuit Employment Content (MIEC)** established for this project is **51%**. The **Inuvialuit Human Resource Ratio** shall be expressed as a percentage and will include all on-site personnel only. The calculation of the Inuvialuit Human Resource Ratio is to include only the time spent by all on-site personnel at each DEW Line monitoring site. The Inuvialuit Human Resource Ratio shall be calculated by dividing the total number of Inuvialuit personnel to be employed, in person-hours, by the total number of on-site personnel employed, in person-hours, multiplied by 100. This ratio shall be calculated using the template provided in **Annex N**. **Only on-site hours associated with the field program are to be included in the MIEC calculation**.

NOTE: To satisfy MIEC requirements, the proponent must retain beneficiaries of the Inuvialuit Trust established under the IFA. The list of beneficiaries is updated on a regular basis by the IRC. Inuvialuit individuals qualified, but not yet registered, can **enroll prior to the beginning of the field program**. Information on the beneficiary enrolment program can be found at the following link: http://www.irc.inuvialuit.com/beneficiaries/enrolment.html.

6.2.5 The **Minimum Inuvialuit Contracting Content (MICC)** established for this project is **55%** The **Inuvialuit Content for Contracting Ratio** shall be expressed as a percentage and calculated by adding the dollar value of all disbursements obtained through, or awarded to, Inuvialuit firms and dividing by the total dollar value of all disbursements incurred under the contract. Sub-contracts or contracts awarded "through" Inuvialuit businesses are eligible as Inuvialuit content only if it can be demonstrated that the goods or services in question are delivered as part of the normal operation of the Inuvialuit business. For the purposes of calculating the Inuvialuit Content for Contracting Ratio, loss, profits, penalties and labour costs will not be included. This ratio shall be calculated using the template provided in **Annex N**.

NOTE: The IRC Inuvialuit Business List is designed to include all companies that meet the requirements for Inuvialuit Business status under the Inuvialuit Final Agreement (IFA). The Inuvialuit Business List **must** be used in order to satisfy MICC requirements. Business names will be verified as part of the proposal evaluation process. The Inuvialuit Business List can be found at the following link: www.irc.inuvialuit.com/corporate/ibl/ .

6.3 *Permits*

6.3.1 Under current permit requirements, landfill monitoring activities require a Land Use License (LUL) from the Inuvialuit Land Administration division of the IRC.

6.3.2 Due to time constraints, the permits and/or licenses required will be applied for by a technical specialist from Defence Construction Canada (DCC). The DCC technical specialist will also fulfill permit/licensing reporting requirements.

6.3.3 A copy of the required permits and/or licenses will be provided to the consultant prior to the field program. It is the responsibility of the consultant to comply with all permit and/or license requirements while on site, and to provide any information required for reporting to the DND project manager upon completion of site work. The consultant will be solely responsible for any costs to rectify a breach of the permit and/or license requirements by the consultant's staff or subcontractors.

6.3.4 Terms that may be included in the licensing requirements could include, but may not be limited to the following:

a) Water use is not authorized beyond the collection of groundwater samples for monitoring purposes;
b) Camp sewage and greywater is to be disposed of in latrine pits, sumps or via combustion or composting toilets. Latrine pits/sumps shall be at least 31 m above the ordinary high water mark of any water body, treated with lime and covered with native material to achieve pre-existing contours;
c) All wastes are to be removed from site. If waste is to be disposed of in northern communities, documentation of authorization may be required from the communities; and,
d) Camps and site activities must be conducted away from waster bodies.

6.4 *Camp Requirements*

6.4.1 Should the consultant choose to establish a camp at one or more of the sites, the following requirements must be met:

a) The camp(s) should be set up in a location that is at a reasonable distance from infrastructure (including landfills, water bodies, roadways, airstrips and existing buildings). Please note camps are not to be set up on landfills;
b) The camp(s) and fuel storage set-up(s), locations, and operation must meet the requirements specified under the applicable licenses and/or permits;
c) There are no potable water sources at any of the sites. Potable water shall be imported from off-site sources;
d) For camp location, set-up, and operation; follow all applicable wildlife safety guidelines; and,
e) All wastes generated during the monitoring events, including camp garbage and garbage from monitoring activities, must be removed from site and disposed of in accordance with applicable laws.

7. REPORTING REQUIREMENTS

******ALL REPORTS MUST BE PROVIDED IN ENGLISH TO ENABLE REVIEW BY THE TECHNICAL AND STAKEHOLDER REPRESENTATIVES******

7.1 *Consultant's Inuvialuit Participation Plan (CIPP) and Report (CIPR)*

7.1.1 The proposal submission must include a preliminary Consultant's Inuvialuit Participation Plan (CIPP). ***Compliance of the CIPP with the MIEC and MICC targets detailed in Section 6.2 is a mandatory requirement under this contract.***

7.1.2 Following contract award, and coincident with the submission of the logistics and work plan, update and submit the final CIPP that outlines any changes to the preliminary CIPP and details the consultant's plan to achieve mandatory MIEC and MICC. The CIPP shall be in accordance with Section 6.2.

7.1.3 Coincident with submission of the draft monitoring reports, provide a draft CIPR with actual Inuvialuit employment (field program only) and contracting content achieved to date. The CIPR must:

a) Be supported by receipts and registration numbers;
b) Include a completed version of the spreadsheet provided in **Annex N**;
c) Include a summary of any anticipated Inuvialuit employment or contracting content for the remainder of the contract;
d) Include the following statement in the MIEC section: "*All on-site person-hours required for the delivery of the field work component of this project were considered in the MIEC calculations*.";
e) Include the following statement in the MICC section: "*All disbursements incurred as part of the delivery of this project were considered in the MICC calculations. Any discrepancies between disbursement totals presented in the MICC tables and invoiced amounts are associated with either labour costs or with overhead/profit, all of which are not to be considered in MICC calculations*."; and,
f) Include a list of corrective actions to ensure compliance with the minimum Inuvialuit employment or contracting content required over the duration of this contract (if required due to MIEC or MICC results below target levels).

7.1.4 Coincident with submission of the final monitoring reports, submit a final CIPR covering the current monitoring year and the cumulative status of Inuvialuit participation under the contract (*as the duration of this contract is one year, the yearly and cumulative amounts will be the same*). The final CIPR must:

a) Be supported by receipts and registration numbers;
b) Include a completed version of the spreadsheet provided in **Annex N**;
c) Include the two statements listed above in Section 7.1.3;
d) Clearly indicate total Inuvialuit employment content ; and,
e) Clearly indicate total Inuvialuit contract content.

7.2 *Health and Safety Plan (HASP)*

7.2.1 Prepare and submit a draft HASP, including site-specific details for each site, at least **6 weeks** prior to initiation of the field work. If revisions/edits are required, the consultant will submit a revised HASP addressing these issues; it must be finalized at least **3 weeks** prior to field work.

7.2.2 The adherence to required health and safety measures for all personnel, including a wildlife safety and monitoring program, shall be addressed in the HASP.

7.2.3 The HASP must reference applicable federal and territorial legislative requirements where the work will take place, including, but not limited to:

a) Yukon *Occupational Health and Safety Act*, *Workers' Compensation Act* and associated regulations (as applicable);
b) Northwest Territories *Safety Act*, *Workers' Compensation Act* and associated regulations (as applicable);
c) *Canada Occupational Health and Safety Regulations* and *Canada Labor Code, Part II*; and,
d) Workplace Hazardous Materials Information System (WHMIS) legislation.

7.2.4 Indicate procedures for having the HASP read and signed off by all personnel prior to conducting any work on site, as well as regular/daily safety briefings.

7.2.5 HASP must address at a minimum, but not be limited to, the following:

a) List of emergency and project-related contacts, including (but not limited to):
   i. Local RCMP detachment(s);
   ii. Search and rescue service providers (if not coordinated by local RCMP);
   iii. Local/regional hospital(s) and/or health centre(s);
   iv. Medevac providers (if not coordinated through hospitals/health centres);
   v. Local fire department(s);
   vi. Territorial spill reporting hotline(s);
   vii. Territorial workers' safety/compensation organization(s);
   viii. Air charter dispatch;
   ix. Hotel(s) where team expects to stay;
   x. Raytheon local/regional contacts (if applicable);
   xi. Consultant's project team members (field and office);
   xii. DND project manager (and alternates, as identified by DND);
   xiii. Satellite phone number(s);
   xiv. SPOT and/or inReach contact information (if applicable); and,
   xv. Subcontractors (e.g., expeditors, personnel providers, etc.);
b) Signed/dated safety policy and evidence of a program to support the policy (e.g., safe work procedures, hazard/risk assessment matrices, etc.);
c) Roles and responsibilities of personnel on-site;
d) Incident reporting forms;

e) Hazard assessment and proposed mitigation measures/controls/procedures to manage risks for the overall program, including (but not limited to):
   i. Working in harsh environmental conditions (e.g., weather, insects, etc.);
   ii. Working in remote locations (e.g., communication equipment and procedures, provision of potable water, survival supplies, evacuation procedures, hygiene procedures, etc.);
   iii. Wildlife safety and monitoring (e.g., polar bears, rabies risks, etc.);
   iv. Travel by charter aircraft (fixed wing and/or helicopter, as applicable);
   v. Travel by ATV (including travel/transport to sites, refuelling, etc.);
   vi. Travel by pickup truck/other vehicle (both on-site and within communities);
   vii. Potential exposure to contaminants and/or chemicals;
   viii. Terrain hazards (e.g., trip/slip hazards, steep slopes/drop-offs, etc.);
   ix. Working near water bodies;
   x. Transport and handling of chemicals;
   xi. Spills/accidental releases;
   xii. Potential environmental impacts resulting from site work (e.g. fuel handling, driving ATVs over sensitive terrain, etc.);
   xiii. Fatigue;
   xiv. Ergonomic issues (e.g., lifting, carrying equipment, repetitive motion, etc.);
   xv. Use of manual and/or power tools; and,
   xvi. Safety of pilot(s) if they are required to stay on-site during field activities;
f) Site-specific hazard assessments, where required (i.e., detailing any hazards unique to a certain site);
g) Applicable training requirements (based on hazard assessment) and verification of training (i.e., statement indicating currency/validity of staff's training);
h) Personal protective equipment (PPE) and clothing requirements (note: steel toed boots are required);
i) Emergency procedures, including (but not limited to):
   i. On-site communication equipment and procedures;
   ii. Daily check-in procedures, including daily check-in time;
   iii. Missed check-in procedures; and,
   iv. Medical emergency (e.g., accidents, injury, illness, etc.) procedures.

Note: *Emergency shelters equipped with rations, cots, blankets and communication devices are present on active NWS sites (i.e., BAR-2 and PIN-M). The emergency shelters at the long range radar sites (i.e., BAR-2 and PIN-M) are located within the garage/heated vehicle storage buildings. Shelters at the short range radar sites (not applicable to this contract) are located in the technical services buildings. These sites are video monitored and access to the unlocked vestibule of an emergency shelter will trigger an alarm and the occupant will be seen on video. From here they will either be contacted through a public address (PA) system or will have to use a phone in the vestibule (with instructions on whom to call). If the situation is deemed an emergency by North Bay NWS ops, an access code will be provided to enter the shelter.* ***These sites are to be used in case of emergency only.***

7.3 *Logistics and Work Plan*

7.3.1 Prepare and submit a draft logistics and work plan, including site-specific details for each site, at least **6 weeks** prior to initiation of the field work. If revisions/edits are required, the consultant will submit a revised logistics and work plan addressing these issues; it must be finalized at least **3 weeks** prior to field work.

7.3.2 Logistics plan must address at a minimum, but may not be limited to, the following:

a) Summary of monitoring requirements at each site (i.e., **Table 1** of these TOR);
b) Proposed schedule for field team travel and work at each site (field work shall occur in August during period of maximum active layer thaw);
c) Expected duration at each site and back-up plans for managing delays;
d) Mobilization/shipping of equipment and supplies to staging location(s), including approaches for ensuring items that must be shipped under the *Transportation of Dangerous Goods Act* will arrive at the required destination(s) in time;
e) Site access and transportation, including (but not limited to):
    i. Mode(s) of transportation and charter aircraft provider(s);
    ii. Distances and travel times between staging location(s) and sites;
    iii. Transportation of equipment between staging location(s) and sites;
    iv. Transportation of dangerous goods between staging location(s) and sites;
    v. Transportation/movement of staff and equipment on-site;
    vi. Role of expeditors/camp service providers (as applicable); and,
    vii. Potential site access constraints and planned mitigation measures;
f) Accommodations on- and off-site (as applicable);
g) Water, food and emergency supplies while on-site;
h) Approach for adhering to terms and conditions of Land Use Licenses/Permits;
i) Communication methods on- and off- site; and,
j) Waiver signed by consultant's project manager (if required).

7.3.3 Work plan must address at a minimum, but may not be limited to, the following:

a) Equipment and supplies required to complete field program;
b) Equipment calibration and decontamination procedures;
c) Detailed approach and methodology for:
    i. Landfill/drainage channel inspections;
    ii. Soil sampling and groundwater monitoring and sampling;
    iii. Sampling additional areas of environmental concern (as applicable);
    iv. Thermal installation monitoring;
    v. Photographic records; and,
    vi. QA/QC procedures;
d) Copies of all field forms/templates (i.e., **Annexes J1, J2, J3, M and P**); and,
e) Detailed sampling/monitoring requirements for each site (i.e., tables and figures from **Annexes A to C**, including coordinates).

7.4 *Field Program Updates and Field Work Progress Report*

7.4.1 During the field program, provide brief updates **at least once a week** by email or phone to notify the DND project manager of the following:

a) The date field work has been completed at each site;
b) Any significant deviations from the field work schedule; and,
c) Any issues that require DND's attention.

7.4.2 Within **15 business days** of completion of the field program, submit a brief field work progress report that addresses the following:

a) Summary of field personnel, including:
    i. Roles and responsibilities;
    ii. Site(s) visited and dates in the field; and,
    iii. Affiliation (e.g., consultant, Inuvialuit subcontractor/beneficiary number);
b) Summary of field program logistics, including:
    i. Site access and transportation;
    ii. Charter aircraft provider; and,
    iii. Accommodations (on- and/or off-site);
c) Actual field work schedule, including start and end dates for each site;
d) Summary of any deviations from these TOR, the consultant's proposal and/or the logistics and work plan, including weather-related delays/issues;
e) Summary of any deviations from the Consultant's Inuvialuit Participation Plan;
f) Summary of the field work activities completed at each site and selected photos;
g) Summary of significant visual observations for each landfill;
h) Summary of all thermal monitoring activities and datalogger maintenance;
i) Tables for each landfill summarizing the following for all sampling locations:
    i. Discuss any significant deviations from intended sampling locations;
    ii. Compare number of proposed samples to number of samples actually collected at each location, including total sums;
    iii. Note reasons why samples were not collected (e.g., dry well, depth of snow cover, depth of refusal, reason for refusal, etc.); and,
    iv. Note locations where insufficient sample volume was collected to analyze for all parameters, and which parameter(s) will not be analyzed;
j) Description of any issues encountered and actions taken;
k) Raw thermistor data;
l) Laboratory certificates of analysis;
m) Copies of raw field notes;
n) Anticipated dates for delivery of draft monitoring reports; and,
o) Waiver signed by consultant's project manager and field team (if required).

An example table of contents for the field work progress report can be provided to the successful proponent, if requested.

7.5 *Draft and Final Monitoring Reports*

7.5.1 Submit **separate** monitoring reports for each site.

7.5.2 Submit the draft and final monitoring reports in accordance with these TOR, at the frequency and in the format described in **Table 5** of these TOR. All reports must be reviewed and accepted by the DND project manager prior to final contract payment.

7.5.3 Monitoring reports must have a cover letter, and must be signed and stamped by both the **Senior Geotechnical Engineer** and **Senior Environmental Professional** identified as members of the project team in the consultant's proposal. The **Senior Geotechnical Engineer** is required to demonstrate certification to practice in the Yukon and/or Northwest Territories/Nunavut.

7.5.4 The draft monitoring reports shall be submitted to the DND project manager within **60 calendar days** of completion of the field work. The final monitoring reports shall be submitted within **2 weeks** of receipt of draft report comments from the DND project manager. The final monitoring reports shall address all questions and comments provided by DND regarding the draft reports. Prior to finalization of the reports, the consultant will provide a written summary of their approach to addressing all of DND's questions and comments. The reports shall be organized in a logical manner and shall contain, at a minimum, the elements listed in the example table of contents provided in **Annex O**.

7.5.5 Each report shall contain an executive summary describing:

a) Dates of field program and primary field activities;
b) Main observations, results and conclusions from the visual, thermal and soil/groundwater assessments at each landfill;
c) Items to be addressed during future monitoring events (e.g., well or thermistor maintenance, list of dataloggers removed, etc.);
d) Recommendations for additional assessment beyond the standard monitoring program/schedule; and,
e) Any other significant information;

7.5.6 Each report shall contain a brief introduction/background for the site describing:

a) Objective and scope of work;
b) Site description and land use;
c) Site geology, hydrogeology and hydrology;
d) Site plan showing all landfills and significant site features, as well as a key map showing the site location;
e) Field program summary (schedule, staff, weather, challenges, etc.); and,
f) Project references.

7.5.7 Each report shall contain a brief discussion of the following:

a) Summary of monitoring requirements;
b) Health and safety;
c) Approach/methodology/equipment used for each monitoring component; and,
d) QA/QC procedures.

7.5.8 Each report shall include individual sections for each landfill containing the following:

a) Landfill description (size, type of remediation undertaken, etc.);
b) Summary of any deviations from TOR scope and explanations;
c) Completed Visual Inspection Checklist (**Annex J1**);
d) Completed Preliminary Stability Assessment (**Annex P**). Apply a severity rating to each feature noted in the Visual Inspection Checklist (**Annex J1**) and an overall performance rating for the landfill as a whole. The severity ratings and criteria are included in **Annex P**;
e) A discussion of all visual inspection issues assessed as "significant" or "unacceptable" in the Preliminary Stability Assessment and any notable trends;
f) A discussion of the overall performance rating of the landfill from the Preliminary Stability Assessment;
g) A photo log in the form of a table, including the details specified in Section 5.9.8;
h) Photo sheets should be sized to fit two photographs per single side of an 8.5" by 11" page and captions indicating the electronic file name and a description of the photo should be included beneath each photo;
i) Key photos showing significant items such as changes in features of note from the previous monitoring event, new features, exposed debris, and any damage to monitoring wells and thermistors shall be included on photo sheets in the body of the report;
j) General photos can be presented on photo sheets in an appendix;
k) A summary of current and historical thermal monitoring data, along with conclusions and recommendations. Completed annual thermal data reports will be provided via DND from a third party;
l) A summary of soil and groundwater sampling by location, including sample descriptions, soil sampling depths, refusal details (depth and inferred reason) and a discussion of analytical results;
m) Annotated figures of each landfill area, on an 11" x 17" sheet, showing all visual inspection features noted and photographic viewpoints, thermal and chemical monitoring sampling points, groundwater flow directions (if possible), elevated analytical results, etc. If historical features have changed, show historical versus current dimensions/characteristics with different colours;

7.5.9 The individual sections for each landfill shall also contain the following:

a) A summary table of soil sample analytical data;
b) A summary table of groundwater sample analytical data and groundwater levels (where applicable);
c) A discussion and comparison of chemical data to background, baseline and historical data (where 7 or more monitoring years of data are available);
d) Graphed trends of chemical data (which will be automatically graphed by completing the Excel template to be provided by DND);
e) A discussion of chemical trends over time. It is recommended that 7 data points are to be used at a minimum to identify a trend. In the event 7 data points are not available, observations should still be made with a statement of limitation, e.g., "there is insufficient information yet available to establish a reliable trend".
f) An analysis of the overall performance of the landfills based on a combination of current and historical visual, thermal and chemical data; and,
g) Recommendations for future action.

7.5.10 The following shall be included in appendices of each report:

a) Report limitations;
b) All field notes and chain of custody sheets. Field notes must be legible;
c) Soil sampling logs (**Annex J2**);
d) Monitoring well sampling logs (**Annex J3**);
e) Thermistor inspection results (**Annex M**);
f) Photos;
g) Laboratory reports of analysis, including:

i. Sample identification number;
ii. Internal laboratory identification number
iii. Date of sample extraction (as applicable);
iv. Date of sample analysis;
v. Method of analysis;
vi. Method/reporting detection limits;
vii. Results of analysis;
viii. Indications of uncertainty interval of results and which results, if any, have been corrected for blank and recovery measurements;
ix. Quality assurance/quality control data; and,
x. Analyst's signature;

7.5.11 Each report shall include a discussion of the QA/QC relative to the analytical results.

7.6 *General*

7.6.1 Any clarifications required regarding interpretation of these TOR must be brought to the attention of the DND project manager by the consultant, and an understanding reached, **in advance** of key milestones (i.e., field work program) or deliverable submission deadlines.

7.6.2 Deliverables are outlined in **Table 5**. Payment for progress will be based on acceptance of deliverables as indicated in **Appendix C.1 of the RFP**. Failure to conduct the work in accordance with these terms of reference, with the accepted work plans, or to a suitable quality standard, will result in delays in progress payment until rectified, at no additional expense to the Crown.

7.6.3 The consultant must provide a 1 to 2 page invoice progress summary report to accompany each invoice. The invoice is to be broken down in accordance with the terms of payment and **detailed by DEW Line Site**. This summary should provide a clear description of:

a) The work conducted during the invoicing period;
b) A summary of progress to date for all deliverable and milestones;
c) A schedule update; and,
d) Any issues and/or any changes requiring DND awareness, action or approval.

7.6.4 All documents produced (laboratory data, raw thermal data, AutoCAD drawings, tables, plans, reports, and summaries) under this contract shall remain the property of DND and shall be turned over to DND with full copyright privileges at the completion of the project.

7.6.5 All report pages shall consist of either 8.5” x 11” or 11” x 17” sheets. No pages shall be submitted on 8.5” x 14” sheets.

7.6.6 Submit final report hard copies using comb binding or in binders. Do not submit reports with spiral binding.

7.6.7 Include the name of the project, the site name, and the date of the report on the cover and spine of the hard copy reports.

7.6.8 Draft submissions will be prepared and submitted with the same content and quality as if they were final submissions (i.e., drafts should be of high quality: clear, concise, complete), including considerations for grammar, tone, and **consistency of data and technical contents**. All reports must be compliant with these TOR, best practices and applicable legislation. If a draft submission delivered by the consultant is judged by DND not to meet the requirements of these TOR, DND reserves the right to request subsequent draft submissions from the consultant, even following revisions to the first draft by the consultant, at no additional cost to DND.

7.6.9 For planning purposes, the consultant should plan to respond in writing to DND on the comments received and address those comments in the deliverables within **2 weeks**.

7.6.10 Review/acceptance of documents by DND or their representative, will not relieve the consultant in any way of any of their legal, financial or professional obligations and responsibilities under this agreement, especially as to the production of complete and accurate documents that comply with all regulatory requirements in force at time of implementation, including but not limited to codes, standards, by-laws, and federal, territorial and provincial guidelines, as well as those required to meet the project objectives.

7.6.11 All measurements shall be submitted in metric units.

7.6.12 Drawings are to be produced using metric units using DND CADD Standards, which will be supplied to the successful proponent. The drawings are to be drawn to scale and created using AutoCAD software. All drawings must conform to departmental drawing standards and conventions. Drawings are to be submitted on fold-out sized (11” x 17”) paper. Digital copies of the drawings shall be provided in AutoCAD and .pdf format.

7.7 *Electronic Reporting Requirements*

7.7.1 Provide electronic data on CDs/DVDs and/or via email.

7.7.2 Electronic copies of landfill drawings will be provided to the consultant in AutoCAD format. Using the provided AutoCAD drawing, create a new layer directly on each existing landfill drawing, for each year of monitoring, for annotating visual inspection observations as follows:

a) Name the layer VIS_INSP_xx, where xx represents the last two digits of the year;
b) Record all visual inspection observations at that landfill for that year on that layer; and,
c) If the observations are the same as for the previous year, copy the observations from the previous year onto the new visual inspection layer for the year.

7.7.3 Using the provided AutoCAD drawing, create a new layer directly on each existing landfill drawing, for each year of monitoring, for annotating photographic viewpoints as follows:

a) Name the layer PHOTO_xx, where xx represents the last two digits of the year;
b) Record all photograph locations; and,
c) Indicate all photograph view directions.

7.7.4 Provide all drawings in AutoCAD format, including all new annotated AutoCAD layers/files so that they can be uploaded to DND's master AutoCAD files.

7.7.5 Provide complete versions of all reports in unlocked .pdf and Microsoft Word 2010 (or compatible) formats.

7.7.6 Provide a copy of all analytical data tables in unlocked Microsoft Excel 2010 (or compatible) format.

7.7.7 Provide updated electronic copies of the Excel templates containing the historical chemical data that will be provided to the consultant by DND.

7.7.8 Provide a copy of all digital photograph files in .jpg format.

7.7.9 Provide a photo log in the form of a table for all photograph files, including the details specified in Section 5.9.8.

7.7.10 Provide a copy of raw thermistor data downloaded directly from the dataloggers in *.raw format.

7.8 *Deliverable/Milestone Summary*

Table 5: Deliverable/Milestone Summary

#	Deliverable / Milestone	Submission	Format	Timeline
1.	Consultant's Inuvialuit Participation Plan (CIPP)	Preliminary	As required in RFP	With proposal for this contract
		Revised (Annual)	1 electronic copy	At least 6 weeks prior to field work
		Final (Annual)	1 electronic copy	At least 3 weeks prior to field work
2.	Proof of laboratories' ISO 17025 certification	Once	1 electronic copy	2 weeks after contract award
3.	Health and Safety Plan	Draft (Annual)	1 electronic copy	At least 6 weeks prior to field work
		Final (Annual)	1 electronic copy	At least 3 weeks prior to field work
4.	Logistics and Work Plan	Draft (Annual)	1 electronic copy	At least 6 weeks prior to field work
		Final (Annual)	1 electronic copy	At least 3 weeks prior to field work
5.	Field Work	As per Table 1	N/A	**August**
6.	Field Program Updates	During Field Program	Email or phone	At least once a week
7.	Field Work Progress Report	Draft (Annual)	1 electronic copy	15 business days after field work
		Final (Annual)	1 electronic copy	2 weeks after DND review
8.	Consultant's Inuvialuit Participation Report (CIPR)	Draft (Annual)	1 electronic copy	With draft monitoring reports
		Final (Annual)	2 hard copies 1 electronic copy	With final monitoring reports
9.	Monitoring Reports	Draft (Annual)	1 hard copy 1 electronic copy	60 calendar days after field work
		Final (Annual)	3 hard copies 4 electronic copies	2 weeks after DND review

8. APPLICABLE REFERENCE DOCUMENTS

8.1 The following documents support these TOR and must be considered as supplemental information, if not specifically identified in the text. In the event of a conflict between the reference documents and the contents of these TOR, the contents of these TOR shall take precedence. If newer versions of the reference documents become available during the contract period, they shall take precedence over the old references and are to be referred to in subsequent work/reports. With the exception of DEW Line Clean-Up Project Documents, copies of the references will not be made available to the consultant, as they are readily available.

8.1.1 Federal Guideline Documents

a) *CCME Guidance Manual For Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment* (2016 or most recent); and,

b) *CCME Reference Method for the Canada-Wide Standards for Petroleum Hydrocarbons in Soil – Tier I Method* (2001, and updates).

8.1.2 DEW Line Clean-Up Project Documents

a) Chemical, visual and thermal monitoring reports from previous monitoring events;

b) Historical chemical data (soil and groundwater) for trend analysis (in Excel format); and,

c) Electronic version of the templates (**Annexes J1, J2, J3, M and N**).

d) These will be provided to the successful proponent.

TABLE A - MANDATORY REQUIREMENTS

Bidder's Cross Reference and/or Response (SIR – Supplemental Information Reference):
In this column, the Bidder should cross-reference where this criteria/requirement is indicated in their proposal. If applicable, the Bidder may indicate how they meet the criteria addressed below, by recording this information in this column.

Item	Description	Bidder's Cross Reference and/or Response (SIR)
A	**MANDATORY REQUIREMENTS** To be considered responsive, a bid must demonstrate compliance with **all** of the **mandatory** criteria at **BID CLOSING.** Bidders must demonstrate their ability to meet those requirements. The proposals will be evaluated on the basis of the following criteria on a simple pass or fail basis, therefore, Bidders are advised to address each area in sufficient depth to show compliance. Proposals which do not give sufficient information will be considered to be non-responsive. Failure by the Bidder to meet the mandatory requirements will render the Bidder's proposal non-responsive and will be given no further consideration in the evaluation process. **What's Expected in Bidder's Proposal for all Mandatory Criteria:** A written narrative, resumes, and/or technical information must be submitted with the Bidder's proposal at solicitation close to clearly demonstrate the Bidder's compliance with the specifications/criteria detailed within this solicitation. Bidders are requested to submit certifications, declarations and/or proof documents that substantiate information as part of their bid. If these documents are not provided at bid closing, the Contracting Authority will notify the Bidder that they have 2 business days to provide the requested documents. Failure to do so, and the Bidder will be deemed non-responsive and given no further consideration.	
A1	**Consultant's Inuvialuit Participation Plan (CIPP)** A preliminary Consultant's Inuvialuit Participation Plan (CIPP) must be provided in a **separate envelope**. The envelope containing the CIPP shall be opened first. Only bidders that comply fully with the CIPP requirements outlined in the terms of reference (TOR) shall move on in the selection process. The CIPP must demonstrate that the required Minimum Inuvialuit Employment Content (MIEC) and Minimum Inuvialuit Contracting Content (MICC) specified for this contract can be met (**TOR Section 6.2 and Annex N**). The MIEC and the MICC shall be calculated using the template provided in Annex N. The proponent must demonstrate that Inuvialuit firms proposed for the work are currently on the Inuvialuit Regional Corporation Inuvialuit Business List (provide business names as they are recorded in the list).	

A2	**Project Team Identification** The Project team to be identified must include the following: Senior Environmental Professional, Senior Geotechnical Engineer, Environmental and Geotechnical Field Staff Lead(s) and Key Sub-Consultants, if applicable If the proponent proposes to provide multidisciplinary services that might normally be provided by a sub-consultant, this should be indicated here. 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.** *The project team to be identified must include the personnel with the following qualifications:*	
A2.1	**Senior Environmental Professional** The proposed Senior Environmental Professional: • Must be registered as a Professional Engineer or Professional Geoscientist in a Canadian jurisdiction or an acceptable equivalent*. *A person who is registered/accredited/licensed as an environmental professional other than a Professional Engineer or Professional Geoscientist in a Canadian jurisdiction may be proposed as the Senior Environmental Professional, provided that they meet all of the minimum experience requirements stipulated in Table B – Point Rated Requirements and that their profession is governed by a reputable organization whose mandate is to ensure that the safety of the public and the environment is protected and that individuals and companies providing services uphold a strict code of professional ethics and conduct.	
A2.2	**Senior Geotechnical Engineer** The proposed Senior Geotechnical Engineer: • Must be registered as a Professional Engineer in the Yukon and/or in the Northwest Territories and Nunavut.	
A2.3	**Geotechnical Field Staff Lead**	

	The proposed Geotechnical Field Staff Lead: • Must be registered as a Professional Engineer in a Canadian jurisdiction.	
A3	**Declaration / Certifications Form** Proponents must complete, sign, and submit the following: • **Appendix B –** Declaration/Certifications Form **as required**	
A4	**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.**	
A5	**Price Proposal** Complete **Appendix C – Price Proposal Form** and **Appendix C.1 – Basis of Payment** and submit in a separate sealed envelope.	
A6	**Procurement Strategy for Aboriginal Business (PSAB)** Proponent must complete, sign and submit **Appendix G** to certify that they qualify as an Aboriginal Business as defined under PSAB and that they will comply with all requirements of PSAB.	

TABLE B – POINT RATED REQUIREMENTS

Point Rated Criteria – Bids meeting all mandatory criteria will be evaluated on the following point rated evaluation criteria. **Bidders should clearly demonstrate in their bid how they meet the point rated criteria.**

Bidder's Cross Reference – In this column, the Bidder should cross-reference where this criteria/requirement is indicated in their proposal.

Overall Proposal Quality – The quality of the entire proposal will be judged on its clarity (e.g., logical flow), conciseness, completeness, attention to detail and consistent presentation of information. A lack of clarity or consistency will be reflected in the scoring of individual sections.

Definitions – For the purposes of evaluation, "**northern**" refers to areas of permafrost and "**remote**" refers to locations having no all-season road access connected to major centers.

Item	Point Rated Evaluation Criteria	Total Points Available	Bidder's Cross Reference
B1	**Achievements of the Proponent on Comparable Projects** Demonstrate that the company has the necessary experience to carry out the assignment. Provide evidence that the projects described were successfully undertaken by: • the company; or • either company of the joint venture / consortium Projects completed by sub-contractors will not be considered. Clearly demonstrate how requirements/objectives were achieved for the projects. Points will be awarded for the Bidder's degree of overall achievement, taking both projects into consideration. In **3 pages maximum per project**, briefly describe **2 projects** carried out **in the past 5 years**: • Projects will be evaluated based on their relevance to the current assignment (e.g., landfill monitoring, geotechnical assessment, northern/remote environment) and in terms of functional requirements (e.g., scope, budget and schedule); • Projects must be either completed (including client acceptance of all final deliverables), or, for multi-year projects, have at least one year completed, including submission and client acceptance of all final yearly deliverables; • For each project, clearly describe: o Project objectives;	20	

	○ Scope of services rendered; ○ Specific constraints encountered and how these were overcome; ○ Unique solutions achieved; ○ Resolution of any conflicts/disputes; ○ Resolution of any QA/QC issues; and, ○ Project deliverables; • For each project, clearly demonstrate the proponent's professional experience (where applicable) in: ○ Geotechnical design, construction oversight and/or evaluation/inspection of northern landfills or other earthworks; ○ Landfill monitoring, evaluation and report writing experience; ○ Northern/remote field work; ○ Groundwater and soil sampling in accordance with best practices (including implementation of decontamination and QA/QC measures); ○ Thermal monitoring; ○ Planning, logistics and coordination in northern/remote regions; ○ Inuvialuit/Inuit/Aboriginal employment and/or contracting; and, ○ Team coordination; • For each project, provide: ○ Initial proposed and final overall project costs, including a discussion of any budget exceedances; ○ Estimated and actual completion dates for each year of the project, including a discussion of any schedule overruns; ○ Names of key personnel who were involved, along with their respective roles and responsibilities. Evaluation of the proposals will consider whether the projects were completed by the team members proposed for this assignment; ○ Degree of responsibility of the proponent's team for each element of the work. When projects were carried out under a joint venture, the partners should be identified and the degree of responsibility assigned to each party should be indicated; ○ Clear illustration of the proponent's success in providing project deliverables and meeting the project objectives within stated scope, quality, budget, and		

	schedule requirements; and, o Demonstration of an understanding of the current project requirements by explaining the relevance of the comparable project against the current contract; and, • For each project, provide: o The name, email address and telephone number of a client reference. The client reference must be familiar with all aspects of the proponent's performance on the project, particularly from a technical perspective (i.e., if the client had both a contracting authority and a technical authority, the client reference must be the technical authority, not the contracting authority). The Evaluation Board reserves the right to contact client references to verify the information provided in the bid. The reference provided must have technical working level knowledge of the project sufficient to verify the information provided in the proposal. The Bidder must ensure that the references identified in the bid are available to be contacted within 20 working days of bid closing.		
	Maximum Points Available for ACHIEVEMENTS OF THE PROPONENT ON COMPARABLE PROJECTS:	**20**	
	Minimum Points Acceptable Overall for ACHIEVEMENTS OF THE PROPONENT ON COMPARABLE PROJECTS:	**12 60% pass mark**	
B2	**Project Team** Demonstrate that the proposed team has the necessary experience, technical expertise and managerial skills to successfully deliver the project as per the TOR. In **2 pages maximum per person**, provide a curriculum vitae (CV) for each of the 4 key members of the project team:		
B2.1	**Senior Environmental Professional** The proposed Senior Environmental Professional: • Should have a minimum of 8 years' relevant experience conducting/managing landfill monitoring projects, interpreting soil and groundwater results and determining landfill performance; and, • Should have a minimum of 5 years' relevant experience working in northern/remote environments.	10	
B2.2	**Senior Geotechnical Engineer**	10	

	The proposed Senior Geotechnical Engineer: • Should have a minimum of 8 years' relevant experience as a geotechnical engineer in landfill and/or earthworks design, construction and/or stability monitoring; and, • Should have a minimum of 5 years' relevant experience working on northern geotechnical and/or earthworks projects.		
B2.3	**Field Staff Team Leads** The proposed Geotechnical Field Staff Lead: • Should have a minimum of 3 years' relevant experience as a geotechnical engineer working on landfill and/or earthworks design, construction and/or stability monitoring; • Should have a minimum of 2 years' relevant experience working on northern geotechnical and/or earthworks projects; and, • Should have experience contracting with Aboriginal firms and/or working with Aboriginal team members. The proposed Environmental Field Staff Lead: • Should have a minimum of 3 years' relevant experience performing soil, groundwater and/or leachate sampling at landfills and/or contaminated sites; • Should have a minimum of 1 year of relevant experience working on northern environmental projects; and, • Should have experience contracting with Aboriginal firms and/or working with Aboriginal team members. CVs should be tailored to suit the requirements of this project. CVs should clearly outline the following: • Proposed project role and responsibilities; • Professional and educational background; • Total years of experience; • Number of years with the firm and associated roles and responsibilities; • Any previous relevant employment and associated roles and responsibilities; • Any professional accreditation(s); and, • Any relevant achievements and awards; CVs should clearly describe each individual's relevant project	13	

	experience, including: • Project title and description/scope of work; • Client; • Project start and end dates (YYYY to YYYY); • Individual's roles and responsibilities; and, • Field work, data analysis and/or reporting experience.		
	Maximum Points Available for PROJECT TEAM:	**33**	
	Minimum Points Acceptable Overall for PROJECT TEAM:	**19.8 60% pass mark**	
B3	**Understanding of the Project and Project Implementation Plan** Demonstrate overall understanding of the objectives and nature of the project and the scope of work, including functional/technical requirements, constraints, risks and challenges. ***Hourly rates, time estimates and financial information shall NOT be provided in the technical proposal.***		
B3.1	**Work Breakdown Structure (WBS)/Responsibility Assignment Matrix (RAM)** In **2 pages maximum**, provide: • A high level work breakdown structure identifying all significant project tasks and subtasks applicable to this project; and, • An associated responsibility assignment matrix detailing proposed involvement of each member of the project team.	5	
B3.2	**Project Schedule/Gantt Chart** In **2 pages maximum**, provide a complete project schedule in Gantt Chart format that: • Identifies all major tasks, sub-tasks and deliverables required for successful completion of the project; • Identifies the time required on each site, clearly indicating that the **fieldwork is to take place in August**; and, • Clearly demonstrates how the proposed schedule will ensure completion of required field activities and reporting deadlines specified in Section 7 of the TOR.	5	
B3.3	**Risks and Challenges**	8	

	In **2 pages maximum:** • Highlight project requirements and potential risks that are particularly significant to the successful delivery of services; • Describe anticipated project issues and challenges including, but not limited to, logistical and project co-ordination challenges, working in a northern and remote environment and health and safety concerns; and, • The firm's approach to address and/or mitigate these risks and challenges.		
	Maximum Points Available for UNDERSTANDING OF THE PROJECT & PROJECT IMPLEMENTATION PLAN:	**18**	
	Minimum Points Acceptable Overall for UNDERSTANDING OF THE PROJECT & PROJECT IMPLEMENTATION PLAN:	**10.8 60% pass mark**	
B4	**Approach and Methodology** Describe the project management and technical approach and methodology including, but not limited to, project planning, data collection and reporting. Describe how the delivery of the services will be carried out to satisfy the requirements of the TOR and the Department of National Defence.		
B4.1	**Project Management Approach** In **4 pages maximum**, explain the proposed management approach to ensure successful delivery of the project, including: • The general project management approach to meet the goals/objectives of these TOR; • The management and organization of the project team, describing the reporting structure, co-ordination and relationships within the team, including the key personnel listed in Section B2 above (an organizational chart is recommended); • **Clear identification of the Project Manager** selected for the management of the overall project (must be either the Senior Environmental Professional or the Senior Geotechnical Engineer presented in this proposal and should have at least 5 years' experience managing projects in northern and remote environments); • Clear definition of the roles and responsibilities of key personnel of the project team; • Clear demonstration of the firm's ability to properly staff	13	

	the project, the contingency plan in place to replace key team members if required due to unforeseen circumstances during the course of the project, and the availability of equally qualified back-up personnel within the organization; • A description of the firm's management plan for sub-contractors that addresses roles and responsibilities, the general management approach and how the firm will ensure control of schedule, budget, scope and overall quality of services; and, • A description of the proponent's approach/tools to project management, tailored to the requirements of this TOR, including (but not limited to): o Scope control techniques; o Budget control techniques; o Quality control techniques; o Schedule control techniques; o Project risk management techniques; and, o Conflict resolution techniques.		
B4.2	**Technical Approach and Methodology** In **4 pages maximum**, explain the technical approach and methodology (including QA/QC) proposed for the technical components of these TOR to ensure successful project delivery: • Describe the firm's proposed groundwater and soil monitoring and sampling protocols, analytical program and QA/QC procedures; • Describe the firm's proposed thermal monitoring data collection protocols; • Describe the firm's proposed visual inspection and photographic documentation procedures; and, • Describe the firm's report preparation procedures, including internal reviews and QA/QC procedures to be implemented prior to submission of deliverables to DND.	16	
Maximum Points Available for APPROACH & METHODOLOGY:		**29**	
Minimum Points Acceptable Overall for APPROACH & METHODOLOGY :		**17.4 60% pass mark**	
Maximum Points Available for Point Rated Criteria:		**100**	
Minimum Points Acceptable Overall for Point Rated Criteria:		**70 70% Pass Mark**	

TECHNICAL POINT RATED CRITERIA

ITEM	WEIGHT FACTOR	RATING	WEIGHTED RATING
Achievements on Comparable Projects			
B1	2.0	0 – 10	0 – 20
		Maximum Points Available =	**20**
		Minimum Points Acceptable =	**12**
Project Team			
B2.1	1.0	0 – 10	0 – 10
B2.2	1.0	0 – 10	0 – 10
B2.3	1.3	0 – 10	0 – 13
	3.3	0 – 10	0 – 33
		Maximum Points Available =	**33**
		Minimum Points Acceptable =	**19.8**
Understanding of Project and Project Implementation Plan			
B3.1	0.5	0 – 10	0 – 5
B3.2	0.5	0 – 10	0 – 5
B3.3	0.8	0 – 10	0 – 8
	1.8	0 – 10	0 – 18
		Maximum Points Available =	**18**
		Minimum Points Acceptable =	**10.8**
Approach and Methodology			
B4.1	1.3	0 – 10	0 – 13
B4.2	1.6	0 – 10	0 – 16
	2.9	0 – 10	0 – 29
		Maximum Points Available =	**29**
		Minimum Points Acceptable =	**17.4**
		Total Technical Rating	**100**
		Minimum Points Acceptable Overall (70% pass mark)	**70**

To be considered further, bidders must achieve a minimum pass mark for each section and an overall Technical Rating of 70 points out of 100 points available as specified above. No further consideration will be given to bidders not achieving the pass marks identified.

TOTAL SCORE

Total Scores will be established in accordance with the following:

Rating	Possible Range	% of Total Score	Score (Points)
Technical Rating	0 – 100	75	0 – 75
Price Rating	0 – 100	25	0 – 25
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 highest rated Technical Proposal for the services will be selected.

Generic Evaluation Table

Evaluation Board members will **individually** evaluate the strengths and weaknesses of the Bidder'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. **At the time of evaluating proposals, the Evaluation Board may award an odd number for evaluation criterion once consensus has been reached.**

NON-RESPONSIVE	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

SET ASIDE for ABORIGINAL BUSINESS

1. This procurement is set aside under the federal government Procurement Strategy for Aboriginal Business, For more information on Aboriginal business requirements of the Set-aside Program for Aboriginal Business, see Annex 9.4, Supply Manual.

2. The Bidder:

   i. certifies that it meets, and will continue to meet throughout the duration of any resulting contract, the requirements described in the above-mentioned annex;

   ii. agrees that any subcontractor it engages under any resulting contract must satisfy the requirements described in the above-mentioned annex; and

   iii. agrees to provide to Canada, immediately upon request, evidence supporting any subcontractor's compliance with the requirements described in the above-mentioned annex.

3. The Bidder must check the applicable box below:

   i. [ ] The Bidder is an Aboriginal business that is a sole proprietorship, band, limited company, co-operative, partnership or not-for-profit organization.

   OR

   ii. [ ] The Bidder is either a joint venture consisting of two or more Aboriginal businesses or a joint venture between an Aboriginal business and a non-Aboriginal business.

4. The Bidder must check the applicable box below:

   i. [ ] The Aboriginal business has fewer than six full-time employees.

   OR

   ii. [ ] The Aboriginal business has six or more full-time employees.

5. The Bidder must, upon request by Canada, provide all information and evidence supporting this certification. The Bidder must ensure that this evidence will be available for audit during normal business hours by a representative of Canada, who may make copies and take extracts from the evidence. The Bidder must provide all reasonably required facilities for any audits.

6. By submitting a bid, the Bidder certifies that the information submitted by the Bidder in response to the above requirements is accurate and complete.

OWNER/EMPLOYEE CERTIFICATION – SET-ASIDE FOR ABORIGINAL BUSINESS

If requested by the Contracting Authority, the Bidder must provide the following certification for each owner and employee who is Aboriginal:

1. I am _____ (*insert "an owner" and/or "a full-time employee"*) of _____ (*insert name of business*), and an Aboriginal person, as defined in Annex 9.4 of the *Supply Manual* entitled "Requirements for the Set-aside Program for Aboriginal Business".

2. I certify that the above statement is true and consent to its verification upon request by Canada.

   _____

   Printed name of owner and/or employee

   _____

   Signature of owner and/or employee

   _____

   Date