



PART 5 STANDING OFFER BRIEF – REQUIRED SERVICES (RS)

Title-Sujet

Environmental Engineering Services Standing Offer Agreement Various National Parks

The following is intended to clarify the general structure of the SRE document.

- 1 General Project Objectives (For Callups)
 - 2 Project Administration
 - PA1 Project Administration
 - PA2 Administrative Services
 - PA3 Codes and Standards
 - 3 Required Services
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1. GENERAL PROJECT OBJECTIVES (FOR CALLUPS)

PCA requires environmental services to provide a range of environmental services, including, but not limited to:

- Project Planning;
- Investigations and Assessments (e.g. Phase I/II/III Environmental Site Assessments, Risk Assessments, demolition/hazardous material/waste surveys, development of Remedial Action and Risk Management Plans (RARMP), reporting and preparation of cost estimates etc.);
- Provision of advice, inspection, audits and training based on technical expertise related to Waste Diversion, Storage Tank Systems, Greening Government and Sustainability;
- Environmental Emergency Planning and Response;
- Design and provision of Tender Documents;
- Construction Administration and Site Supervision;
- Technical Peer Review and Translation Services.

The majority of the services will be required at PCA operational, visitor, construction and contaminated sites. Contaminated sites are currently funded and managed through the government-wide initiative known as the Federal Contaminated Sites Action Plan (FCSAP); a majority of sites will fall under PCA responsibility but there will be numerous situations where sites may be under third party responsibility and non-FCSAP funded. FCSAP is a long-term strategy to manage contaminated sites for which departments, agencies and consolidated Crown corporations have control or responsibility. The number and type of projects are known but budgets will not be known until funding is approved on a project-by-project basis.

Each Call-up will elaborate on the specific objectives for individual projects; however, the following broader government objectives will apply to all call-ups:

- .1 Deliver the project utilizing best practices in support of PCA needs, respecting the approved scope, quality, budget and schedule.
- .2 Keep an open communication with all members of the project delivery team and stakeholders throughout all phases of the project life.
- .3 Provide rigorous quality assurance review during the design and construction phases, including the application of value engineering reviews in the design. Timely response to correct issues as they occur.
- .4 Success in satisfying and where possible exceeding the expectations and needs of PCA and stakeholders,
- .5 Continuity of key personnel working in a dedicated effort for the project life.

The Consultant will adhere to all the Standards and Guidelines outlined in Appendix E, as may be applicable to each project.

2. PROJECT ADMINISTRATION

PA1 PROJECT ADMINISTRATION

The scope of work will vary from project to project but may include any combination of the services identified herein. The services outlined below apply not only to the Consultant, but to any discipline that may be required for a specific project.

Environmental Services related to contaminated sites, ecological restoration and construction may include, but are not limited to:

- Phase I, II, III Environmental Site Assessments (ESAs) which may or may not also include Geotechnical Assessments, Biological Assessments, Hydrological Assessments, Hydrogeological Assessments, Geomorphological Assessments and/or Geophysical Assessments;
- Environmental Impact Assessments including archaeology, cultural resource and indigenous engagement support services;
- Remedial Action including Remediation Options Analysis, Risk Management Plans and Liability Cost Estimates;
- Pre and Post Demolition Waste Assessment and Designated Substance Survey;
- Human Health and Ecological Risk Assessments;
- Hazardous Materials/Waste Auditing and Abatement Monitoring including Toxicological Chemical Exposure Analysis;
- Mould Assessment and Abatement Monitoring including Toxicological Exposure Analysis;
- Storage Tank Systems Design, Maintenance, Operation, Repairs, Inspection, Training, Auditing;
- Environmental Auditing and Advisory services which may include provision of Waste Management/Diversion, Green House Gas Emission, Sustainability and Greening Technologies, design, operations, maintenance and/or training;
- Environmental Emergency Response Plans and Spill Response advice, services and training;
- Design and Tender Documents related to remediation of contaminated sites and projects including storage tanks systems;
- Site Supervision, Project Management and Contract Administration Services related to construction, remediation of contaminated sites and projects including storage tank systems and greening technologies.

PA2 ADMINISTRATIVE SERVICES

2.1 PROJECT MANAGEMENT

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

The Departmental Representative is directly concerned with the project and is responsible for its progress. The Departmental Representative is the liaison officer with the Consultant, and PCA.

Unless requested otherwise by the Departmental Representative, the Consultant obtains all Federal requirements and approvals necessary for the work.

2.2 LINES OF COMMUNICATION

Unless otherwise requested by the Departmental Representative, the Consultant shall communicate with the Departmental Representative only.

During construction tender call, PCA conducts all correspondence with bidders and makes the agreement award.

2.3 MEDIA

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

2.4 GENERAL DELIVERABLES

Where deliverables and submissions include summaries, reports, drawings, plans, specifications and schedules, one (1) original shall be provided to the Departmental representative in electronic format, unless otherwise specified.

Electronic format shall be as follows:

Deliverable	PCA
1 Written reports and studies:	Microsoft Word, Excel & Powerpoint
2 Spreadsheets and budgets:	Microsoft Word, Excel & Powerpoint
3 Presentations:	Microsoft Word, Excel & Powerpoint
4 Schedules	Adobe PDF, Microsoft Project
5 Drawings:	Auto CAD
6 Specifications:	NMS Edit
7 Web	Adobe PDF
8 Internet	HTML, Macromedia Flash
9 Data (formatted/raw)	Microsoft Access
10 Alternatively, the Consultant may submit the work in pdf format. Except final drawings at any stage must be in AutoCAD format.	
11 All drawings will be generated and distributed in the format using layering and file transfer protocols as prescribed in Standards and Procedures, Appendix D.	

2.5 ACCEPTANCE OF CONSULTANT DELIVERABLES

While PCA acknowledges the Consultant's obligations to meet project requirements, the project delivery process entitles PCA to review the work. PCA reserves the right to reject undesirable or unsatisfactory work; the Consultant must obtain Departmental representative acceptances during each of the project stages.

Acceptances indicate that, based on a general review of material for specific issues, the material is considered to comply with governmental and departmental objectives and practices and that overall project objectives should be satisfied. The acceptance does not relieve the Consultant of professional responsibility for the work and compliance with the terms and conditions of the agreement.

PCA acceptances do not prohibit rejection of work which is determined to be unsatisfactory at later stages of review. If progressive design development or technical investigation reveals that earlier acceptances should be withdrawn, the Consultant is responsible for redesigning work and resubmitting for acceptance at the Consultant's cost.

2.6 COORDINATION WITH SUB-CONSULTANTS

The Consultant shall:

1. Throughout all phases of the project, assume responsibility for coordinating the work of any Sub-consultants and specialists retained by the Consultant,
2. Ensure clear, accurate and ongoing communication of concept, budget, and scheduling issues (including changes) as they relate to the responsibilities of all Sub-consultants and specialists from initial base building reviews to post construction reports.
3. Coordinate input for the Departmental representative's Risk Management Plan.
4. Coordinate the Quality Assurance process ensuring submissions of Sub-consultants are complete and signed-off by the designated senior reviewer,
5. Ensure Sub-consultants provide adequate site inspection services and attend all required meetings.

2.7 PROJECT RESPONSE TIME

Key personnel of the consultant and sub-consultants or specialist firms must be personally available to attend meetings or respond to inquiries within two (2) working days.

2.8 DESIGN MEETINGS

Meetings will normally be by conference calls. On occasions face to face meetings will be required. At the time of call-up, the Departmental representative will provide an estimate number of meetings/conference calls planned for the projects.

The Consultant shall:

1. Attend the meetings,
2. Record the issues and decisions,
3. Prepare and distribute minutes within 48 hours of the meeting.

Standing agenda items shall include: scope, schedule, cost, risk, quality, human safety, communications, sustainable development and ecology.

On occasion, there may be urgent, problem-solving meetings. The Consultant must be available to attend such meetings in a mutually agreed upon location within two (2) working day(s) notice.

2.9 REMEDIATION/CONSTRUCTION MEETINGS

The Departmental representative will arrange meetings generally every two weeks throughout the construction period, for representatives from:

1. Parks Canada Agency,
2. Public Services and Procurement Canada (if applicable/required)
3. Consultants,
4. Contractor.

Meetings will normally be held on site, at the contractor's site office.

The Consultant shall:

1. Attend meetings,
2. Record the issues and decisions and prepare and distribute minutes within 48 hours of the meeting.

2.10 PCA QUALITY ASSURANCE / VALUE FOR MONEY REVIEWS

In concert with the Integrated Design process, PCA will conduct Value for Money/Quality Assurance reviews on design and construction documents prepared by the Consultants. Consultants and sub-consultants must respond in writing to PCA's comments, no longer than five (5) working days and will be held accountable for delays if proper and timely responses do not occur.

PCA reviews are not intended as a check against errors or omissions contained within the documents submitted. Consultants are responsible for any such errors or omissions, regardless of any review by PCA.

The Consultant will provide the following general services as outlined below but not limited to:

1. Attend and/or facilitate project meetings during all phases of project delivery and keep and distribute meeting minutes;
2. Provide full coordination of work with other disciplines including contracted Engineering and Specialist Consultant services;
3. Provide assistance with project scheduling, budget, and cost control as required;
4. Provide assistance with risk management as required;
5. Provide Site Supervision and Construction Contract Administration Services as required.

2.11 PCA RESPONSIBILITIES

PCA Departmental Representative will:

- .1 Provide all available background reports and technical data;
- .2 Provide functional program and available visitor's data;
- .3 Provide all available drawings and plans;
- .4 Review and provide a quality assurance report on the consultant's Pre-Design Report;
- .5 Review revisions and consultant rebuttal to the PCA quality assurance report;
- .6 Review and Approve the detailed work breakdown structure for the project;
- .7 Review and Approve the final Pre-Design Report;
- .8 Authorize consultant to proceed to Schematic Design;
- .9 Direct concept planning and liaison with all other PCA staff on behalf of the consultant.
- .10 Review or provide Archeological services – as per Call-up;
- .11 Provide content resources, photographs, and other visual media where available;
- .12 Provide translation of interpretive text; and
- .13 Liaison all functional areas with PCA staff.

PA3 CODES AND STANDARDS

All criteria will be in accordance with the most recent edition of Canadian Codes, Guidelines and Standards, and any other relevant Codes and criteria as applicable. If Federal codes and bylaws are not available, and if local, municipal, provincial, or territorial codes and bylaws are more stringent, they will take precedence.

Acts, Regulations, by-laws, and decisions of "Authorities having jurisdiction" will be observed. In cases of overlap, the most stringent will apply.

The Consultant will identify and communicate with all jurisdictions applicable to the project.

For material properties (both physical and chemical), methods of fabrication, tests, etc., reference should be made to the latest editions of all applicable standards including American Society of Testing Materials (ASTM), Canada Standards Association (CSA), National Fire Code (NFC), and the Canadian General Standards Board (CGSB) as a minimum, or to local, municipal, territorial standards if they are more stringent.

3. REQUIRED SERVICES (RS)

RS 1 ENVIRONMENTAL SITE ASSESSMENTS, IMPACT ASSESSMENTS, RISK ASSESSMENTS AND SITE REMEDIATION/RISK MANAGEMENT MEASURES

Depending on the site-specific considerations and environmental issues in hand, Consultants may be required to carry out all or part of the following studies and services.

RS 1.1 PHASE I ENVIRONMENTAL SITE ASSESSMENT

Phase I ESAs investigations consist of a compilation and review of all available information regarding the site including historical information. Information gathering will include, but is not limited to:

- a. Information related to any past or present potential environmental issues (storage tanks, fire training areas, waste disposal areas, etc.);
- b. The site characteristics (i.e., site geology, surface and groundwater, soils, sediments, utilities, services, setting and adjacent land use);
- c. The historical background of the site (including land title search, aerial photos, etc.).

Phase I ESA will also include a site reconnaissance to determine any visible signs of contamination and to characterize the general extent of contamination, to the extent possible without use of intrusive methodologies. Adherence to Canadian Standards Association Standard Z768 (R2018) and CCME guidance to perform the work is mandatory. In addition to the standard Phase I ESA requirements, the site visit may also entail some representative sampling (soils, sediment, surface water, building materials such as paints, asbestos, and other media) and laboratory testing (i.e. 'Enhanced' Phase I ESA) on a site specific basis at the discretion of the Technical authority.

Portions of the project requirements may be modified at the discretion of the Technical authority based on project specific requirements (i.e. Land titles searches may not be required where this task has already been carried out).

A report outlining the findings of the Phase I ESA with recommendations and cost estimate for further work (if required) will be produced.

Provide an ASCS/NCSCS 2008 score for the site as required based on available information.

RS 1.2 PHASE II ENVIRONMENTAL SITE ASSESSMENT

A Phase II ESA confirms the absence, or presence and nature of contamination, usually through a sampling, and laboratory analysis program.

A Phase II ESA is performed in response to recommendations outlined in a Phase I ESA and includes the intrusive sampling of various impacted media at all areas of potential environmental concern (APEC's) and analytical testing to confirm the concentration of contaminants of potential concern (COPC) in relation to the Environment (CCME) Environmental Quality Guidelines (EQG). Where CCME EQG do not exist, environmental guidelines or standards from other jurisdictions (i.e. Provincial/Territorial) may be applied. Adherence to Canadian Standards Association Standard -CAN/CSA-Z769-00 (R2022) to perform the work is mandatory.

Phase II ESAs consist of field investigations that may involve geophysical surveys (addressed as a separate discipline), test pitting, sediment sampling, storage tank site assessments, borehole drilling, and/or the installation of groundwater monitoring wells, as well as other site-specific tasks. The field program should provide sufficient information for the evaluation of any site contamination by characterizing soil, surface and bedrock geology, sediment, hydrology, hydrogeology and other relevant environmental components.

The results of the investigation and laboratory analysis should then be assessed to confirm the presence of contamination and identify the type of impacts on-site.

Consideration should be given to such factors as potential for migration and off-site contamination, background levels, magnitude and number of exceedances.

If possible, the results of the investigation are used to determine the extent of any surface and/or subsurface contamination associated with the area of investigation. However, a Phase III ESA may be required to delineate contamination.

Site plans and subsurface profiles would be produced to assist in characterizing and possibly delineating the contamination and migration patterns, if applicable. Conceptual site models may also be required to emphasize the type and extent of subsurface contamination, define the pathways for contaminant migration and identify potential receptors. Narrative and/or cross-section conceptual site models should be prepared for the sites investigated.

A report outlining the findings of the Phase II ESA and recommendations for further work (if required) will be produced. A substantive cost estimate for any additional site assessment work required is to be included with recommendations.

The Phase II ESA will gather the mandatory information required for reporting to the Federal Contaminated Sites Inventory, including a classification or ranking completed in accordance with the FCSAP Contaminated Site Classification as detailed in RS1.8 Federal Reporting Requirements. This classification may need to be updated after completion of the Phase III ESA.

Provide an ASCS/NCSCS 2008 score for the site.

RS 1.3 PHASE III ENVIRONMENTAL SITE ASSESSMENT

Phase III ESAs include additional field sampling and laboratory analysis to further define the extent of contaminants identified on-site during the Phase II ESA.

A detailed characterization of the site will be completed in order to assess chemical movement along various pathways and the resultant human and environmental exposures.

The detailed investigation will delineate boundaries of contamination found during the Phase II ESA.

An examination and definition of areas of unknown subsurface anomalies will be undertaken in areas that have been identified through remote sensing or geophysical techniques.

If required, collection of additional infrastructure data that will be required to demolish, clean, stabilize and isolate man-made structures on the site (e.g. buildings, tanks, pits and lagoons) or facilitate remediation or reclamation of the site may be required.

Collect all site information required to further assess cleanup criteria and assess the feasibility of various remedial options and associated costs necessary to attain preferred end land use.

A report outlining the findings of the Phase III ESA and recommendations for further work (if required) will be produced. This document may be presented in a single document or under separate cover at the discretion of the Technical authority. A substantive cost estimate for additional investigation and/or preparation of remedial options evaluation and/or remedial action and risk management plan must be included.

If the report recommends further work, a liability estimate will be included as a separate section from the remedial options evaluation and/or remedial action plan. The liability estimate must be based on the criteria and approach outlined in the Public Sector Accounting Standards (PSAS) Implementation Guide Section PS 3260 – *Liability for Contaminated Sites*. This section must provide the details of all inputs which determined the liability estimate, i.e. cost estimates of the recommended remedial option including site closure costs, and if applicable, cost estimates for risk management activities, soil and groundwater post-remediation long-term monitoring (LTM), number of years of LTM and frequency of the monitoring activities. Indicate if Human Health and Ecological Risk Assessment (HHERA)

cost estimates have been included in the liability estimate as part of recommended future work. If remedial action plan costs and / or LTM costs are undeterminable, an indicative liability estimate can be added based on liability estimates of other sites sharing similar nature and source of contamination and site complexity.

RS 1.4 ENVIRONMENTAL IMPACT ASSESSMENT

Complete environmental impact assessments or portions thereof in accordance with federal, provincial, territorial or land claim specific legislation. Generally, impact assessment work would include identification and evaluation of potential environmental effects, mitigation measures, and follow-up actions for proposed projects. Strategic environmental assessments of programs, plans or policies may also be required. Consultants may be required to complete the following work, depending on the proposed project details, and the environmental assessment track:

- a. Conduct environmental assessment and prepare reports pursuant to the federal Impact Assessment Act (IAA 2019) and/or provincial / territorial / comprehensive land claim requirements.
- b. Compile background information for all project stages. This will include liaising with the proponent and/or Responsible Authorities involved and collecting environmental information on the project site such as biophysical, biological, archaeological, and geological data.
- c. Assess and recommend the appropriate level of engagement and/or consultation for the project assessment. Consult and coordinate with federal, provincial, territorial, regional/local jurisdictions, Indigenous/Inuit groups, and other stakeholders regarding information sharing and gathering and anticipating the potential impacts of proposed projects and/or required studies. Prepare communication materials and conduct stakeholder, public, Indigenous/Inuit consultation and engagement.
- d. Determine the applicability of other environmental regulations. These may include, but not limited to, the Species at Risk Act, the Migratory Birds Convention Act, the Fisheries Act and/or Navigable Waters Protection Act.
- e. Determine the extent to which a project contributes to sustainability and the extent to which the effects of a project hinder or contribute to the Government of Canada's ability to meet its environmental obligations and its commitments in respect of climate change.
- f. Recommend mitigation measures for environmental effects, determine significance of these effects on valued ecosystem components and valued social components. Recommend monitoring and/or follow-up programs where required. Examples may include development and implementation of fish habitat compensation measures to meet Fisheries Act requirements.
- g. Prepare the environmental assessment document, with a determination if the project is likely to result in adverse, significant environmental effects, considering all mitigation measures.
- h. Complete additional tasks typically carried out by PCA to facilitate the duties of either a federal or Responsible Authority (as defined under the 2019 Impact Assessment Act) or similar type duties including provision of training and advice.

RS 1.5 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT (HHERA)

Work required may include assessing the risks to human health, ecological components and may take the following:

- a. Preliminary Quantitative Risk Assessment for Human Health (PQRA)
- b. Sediment Toxicity Study
- c. Detailed Quantitative Risk Assessment for Human Health (DQRA)
- d. Ecological Risk Assessment (ERA)

Depending on the site-specific considerations and environmental issues at hand, Consultants may be retained to perform all or part of the following tasks but not limited to:

1. Review all previous site information and reports.
2. Conduct a site reconnaissance to determine, understand and/or verify relevant risk information including such characteristics as site access, site usage, potential human and ecological receptors, additional pathways and visible signs of ecological stress.
3. Identify appropriate human and ecological receptors through available information, relevant literature and/or field observations.

4. Develop a conceptual site model.
5. Analyze existing information and identify any significant gaps in data required for use in the risk assessment.
6. Design and implement a sampling plan to collect additional samples (soils, sediment, benthic, invertebrates, groundwater and surface water, indoor air, etc.) to eliminate data gaps from previous assessments and/or provide additional data to reduce assumptions.
7. Collect ecological samples of plants, animals, fish, insects, etc. as required.
8. Conduct numerical modelling for various pathways in order to eliminate data gaps from previous assessments and / or provide additional data to reduce assumptions.
9. Carry out both Preliminary Risk and Detailed Risk Assessments considering both the human health and ecological implications of identified contamination. Where possible, most risk assessments are required to follow the most current available federal risk assessment protocols developed by expert support departments (Health Canada, Fisheries and Oceans Canada and Environment and Climate Change Canada), FCSAP and CCME.
10. In selected cases where federal property transactions, a Record of Site Condition (RSC) may be required. In these cases the risk assessment and supporting documentation would need to meet the Provincial Guidelines. The consultant may be expected to submit the resulting RSC on behalf of PCA.
11. Develop and / or assist in implementing remedial action and risk management plans, risk management measures and remediation strategies.
12. Provide an ASCS/NCSCS 2008 score for the site and/or a site closure tool/report.

A report outlining the findings of the risk assessment and recommended further work which may include further data sampling and/or risk management strategies with an estimate of costs would be produced. Based on the outcomes of risk assessments, the consultant may also be required to complete or revise remedial options analyses and RARMPs.

RS 1.6 REMEDIAL OPTIONS REVIEWS AND REMEDIAL ACTION AND RISK MANAGEMENT PLANS

Based on the results of the assessment activities, a remedial options analysis/review (ROA/ROR) may be completed including estimated costs for each option before a comprehensive site remedial action and risk management plan (RARMP) is developed for the site. The detailed RARMP shall be designed to reduce the environmental liabilities present at the site upon completion of the project. A significant portion of the effort to produce a RARMP is in the planning stage. The RARMP shall incorporate other key factors such as federal and department specific policies, First Nation and public concerns, territorial requirements, clean up criteria and risk management techniques.

The RARMP would include, but would not be limited to, the following:

1. Technical remedial plan with all details.
2. Remedial monitoring, sampling, and analysis plan.
3. Tentative remedial work schedule.
4. Specifications with applicable drawings.
5. At a minimum, a Class "C" (Indicative, +/- 15%) cost estimate.
6. Post-remedial monitoring plan.
7. Other site specific requirements.

The identification and evaluation of appropriate remedial measures (including risk assessment as summarized below) to clean up the site in accordance with the federal, provincial, territorial and regional/municipal remediation criteria, would be included. Optional remedial measures should be identified based upon known technology and local environmental conditions and sensitivities.

The appropriate remediation criteria must be determined and the analytical results from the site assessment work would be compared to these criteria.

One of two approaches can be used, the Guideline Approach or a Risk Assessment Approach. The guideline approach involves the use of the most recent CCME EQG and the Canada Wide Standards for Petroleum Hydrocarbons (CWS for PHC's) in Soil (CCME). Where generic criteria do not exist for certain COPC, the applicable criteria from other jurisdictions may be adopted.

If site conditions warrant the use of Site-Specific Remediation Criteria (SSRC), a risk assessment approach may be adopted. This involves a scientific process that makes use of a detailed evaluation of the hazard and exposure potential at a particular site in order to recommend a remediation level to meet the land use requirements.

Once the remediation objectives are established (using generic or site-specific criteria), the remedial plan or risk management plan to implement the necessary measures to manage contamination can be prepared. This should include:

FCSAP Integrating Climate Change Considerations into Federal Contaminated Sites Management

“Beginning in Phase IV of the program (2020-2025), FCSAP has committed to the inclusion of climate change considerations and associated impacts at all federal contaminated sites. Climate change considerations must be incorporated from the initial site assessment phase onwards, ensuring that future climate conditions and related effects on contaminated sites are taken into account throughout the entire lifecycle of all remediation/risk management (R/RM) and long-term monitoring (LTM) projects.

A comparative analysis of various remedial alternatives would typically be completed using a matrix evaluation method, however, in some instances other methods may be appropriate. This would include the relative ranking of alternatives based on selection criteria such as protection of human health and the environment, technical effectiveness of meeting remediation criteria, time, stakeholder acceptance, future land use and ownership, and cost.

Costs of various options should be estimated, and remedial options prioritized based on appropriate criteria established and presented by the consultant.

A report outlining the results and recommended remedial options would be produced.

Cost estimates for the recommended remedial option will determine a separate section on liability estimate based on the criteria and approach outlined in the Public Sector Accounting Standards (PSAS) Implementation Guide Section PS 3260 – *Liability for Contaminated Sites*. The liability estimate section must also include site closure costs, and if applicable, cost estimates for risk management activities, soil and groundwater post-remediation long-term monitoring (LTM), number of years of LTM and frequency of the monitoring activities.

RS 1.7 OTHER WORK

Other studies and services may be required in order to facilitate or undertake work related to ESAs, Risk Assessment and/or Remediation such as (but not limited to):

1. Sediment characterization
2. Hazardous Materials Survey and Occupational Hygiene Exposure Modeling
3. Biological Studies and Investigations
4. Geotechnical, Hydrogeological, Hydrological, Geomorphological and Geophysical Assessments
5. Archeological Assessments
6. Litigation Support related to contaminated site work
7. Peer Review of various contaminated sites projects
8. Contaminated Sites Program coordination
9. Preparing guidance, training and presentation materials that pertain to contaminated sites for delivery to federal employees and/or for information purposes.
10. Delivering training
11. Federal Contaminated Site Action Plan (FCSAP) related program and process studies and project reviews
12. Public Consultation, Indigenous relations, liaison coordination and stakeholder engagement
13. Climate Change Vulnerability Assessments

RS 1.8 FEDERAL REPORTING REQUIREMENTS

The consultant may be responsible for completing or updating a National Classification System for Contaminated Sites (NCSCS) site classification for each site. Site classification are provided in Canadian Council of Ministers of

the Environment National Classification System for Contaminated Sites, Guidance Document, 2008 [National Classification System for Contaminated Sites \(ccme.ca\)](#).

If a site is located in or near a water body, then the Federal Contaminated Sites Action Plan (FCSAP) Aquatic Sites Classification System (ASCS) should be used instead of the National Classification System for Contaminated Sites (to be provided upon request).

The consultant may be required to complete the FCSAP site closure tool (SCT) and/or site closure report (SCR) which consists of mandatory requirements for documenting the closure of remediated or risk managed federally contaminated sites funded by the FCSAP program. It provides consistent evaluation criteria or conditions that determine when a site can be considered closed.

The consultant may be responsible for completing or updating the Federal Contaminated Sites Inventory (FCSI) database. Procedures for entering information into the Federal Contaminated Sites Inventory database are provided in Treasury Board Federal Contaminated Sites Inventory (FCSI) <http://www.federalcontaminatedsites.gc.ca/default.asp?lang=En&n=1F9527BF-1>.

The consultant may be responsible for developing or updating an indicative estimate of liability or contingent liability for all sites on the property. These liability estimates must use the following:

- a) Treasury Board [Directive on Accounting Standards: GC 3260 Liability for Contaminated Sites- Canada.ca](#)
- b) Canadian Council of Ministers of the Environment [Recommended Principles on Contaminated Sites Liability \(ccme.ca\)](#)

RS 2 ENVIRONMENTAL AUDITS

PCA requires consulting services to conduct general environmental baseline studies, detailed environmental audits, provision of design drawings and specifications to upgrade non-compliance items highlighted in audits, and supervision of upgrades (as per design drawings and specification), all for the identified site and/or facilities.

The work is to be carried out to ascertain the current environmental status of the site and/or facilities, and to ensure compliance with federal, provincial, and municipal environmental legislation and with policy commitments.

Additionally, PCA may require Professional Development and Technical Training to educate federal employees on regulatory requirements associated with facility operations.

The following environmental issues/categories are typically covered as part of the audit/assessment process or later phases to implement corrective measures, all issues may not be applicable to all situations, some situations may require detailed audits specific to only one, or a few, of the issues:

1. Air Emissions
2. Indoor Working Environment/Air Quality
3. Halocarbon and Ozone-Depleting Substances
4. Asbestos Containing Materials
5. Hazardous Materials/Dangerous Goods Storage/Use/Transportation/Disposal
6. Hazardous Waste Management
7. Non-Hazardous Waste Management
8. Energy Management
9. Environmental Management Systems
10. Environmental Emergency Response Plans
11. Water Management
12. Wastewater Management
13. PCB-Containing Equipment
14. Chlorinated Solvents
15. Integrated Pest Management

16. Lead and Mercury Containing Materials
17. Drinking/Potable Water Systems
18. Water quality and sanitary surveys
19. Species at Risk

The basic goals of the audits and associated follow-up works are:

1. To identify and document significant environmental aspects and/or operations which are regulated or affected by applicable environmental legislation and federal government Policies, Guidelines, Codes and Best Management Practices.
2. To assess the degree of compliance with the established legal requirements and policies.
3. To provide recommendations that could be incorporated into action plans, design drawings and specifications designed to ensure that the facility operates in compliance with applicable legislation, standards, and policies.
4. To provide written procedures, design drawings, and specifications for bringing non-compliance findings into compliance with applicable legislation, standards, and policies. Design drawings and specifications to also meet facility operational requirements.
5. To supervise remediation construction services as per the requirements of the design drawings and specifications.
6. To provide training or advice on regulatory requirements associated with environmental issues to familiarize federal employees on regulatory requirements associated with environmental issues typical of federal facilities.

Work includes preparing Statements of Work/Work Plans for and/or conducting environmental audits, including environmental baseline studies (covering the range of environmental issues) and detailed audits (specific to only one or a few environmental issues), undertaking peer reviews of environmental audits or reports prepared by others, providing design drawings and specifications as required to upgrade compliance at facilities, and site supervision of contractors completing compliance upgrades at facilities, as well as other related work as required. Work also includes providing expert advice and support related, but not limited to, litigation, negotiations, compensation, and similar matters.

The scope of work will vary according to the specific needs of a project, in most cases (particularly for general facility audits) a thorough assessment or investigation of property history including past and present operations, on-site interviews and a detailed walk-through of the facility, and a detailed records review process may be required are to be conducted to identify potential significant environmental aspects and to achieve the goals and objectives of the specific project.

The need for certified auditors or technical specialists in one particular aspect will be determined on a project-by-project basis and identified in the call-up. General audits/environmental baseline studies are to be conducted by Certified Environmental Auditors (ISO or CSA certified) or other registered professionals as the case may require, in keeping with national and international auditing standards and protocols. Detailed audits, preparation of design drawings and specifications, and site supervision during implementation of design drawing and specifications requirements, are to be completed by appropriately accredited auditors or other registered professionals specific to the environmental issue being audited or brought into compliance.

A Building Condition Report may be required as part of the Environmental Audit.

Provision of training and/or advice may be required on any Regulation, Act, Code, Standard, Guideline, etc. as well as processes including permit process, Project Management, on any environmental issues. Training shall be conducted in person, webinar and/or by video conference. Resources to aid in training to be provided by PCA (paper, electronic, etc.).

All criteria will be in accordance with the current edition of Canadian Codes and Standards, and any other relevant Codes as applicable. If direction or decisions are provided by authorities having jurisdiction they will be observed and complied with.

Provision of Design drawings to be completed/reviewed by a senior technologist with experience with AutoCAD or equivalent design program (all files to be compatible with Microsoft® Operating Systems, the CADD drawing format

required for drawings is the AutoCAD® native format DWG file CADD format – See PSPC National CADD Standard for more details at:

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

Provision of specifications will require specification writing/review from an individual who has five (5) years of direct experience writing and reviewing NMS specifications.

All laboratories used for performing analysis must be members of the Canadian Association for Laboratory Accreditation (CALA). If CALA accreditation for a specific parameter is not available, equivalent accreditation bodies will be accepted.

RS 3 STORAGE TANK SYSTEM AUDITS, DESIGN, SITE SUPERVISION, AND INSPECTIONS FOR UPGRADES, REPLACEMENTS AND DISPOSALS

The scope of work for this item may include the following tasks:

1. Provide a description and examination of the storage tank system components, and operation and maintenance procedures.
2. Assess of compliance against all applicable regulations, policies, and codes of practice.
3. Generate a report outlining and any corrective, remediation, mitigation of non-compliance issues.
4. Storage tank design and tender assistance and site supervision and contract administration during replacement, construction and disposal.
5. Completion of storage tank standard operating procedures, environmental emergency response plans, product transfer area risk assessments, operation and maintenance manuals and as-built drawings.
6. Complete storage tank inspections including their operation and maintenance processes.
7. Provide training to federal employees through physical, virtual and on-demand forums for and initial and ongoing operational and maintenance requirements.
8. oversee upgrades, replacement and disposal of old storage tank systems and product transfer areas.

Review existing records, conduct site inspections, interviews, questionnaires, and checklists, as appropriate. Where necessary, photographs will be taken to support observations and/or recommendations.

Obtain information about the procedures relating to the operation, maintenance, monitoring, inspections, etc. of the storage tank systems, including but not limited to: Environment and Climate Change Canada (ECCC) registration, standard operating procedures, filling; inventory control; corrosion protection; impact protection, leak detection; tank bottom water monitoring; annual testing of monitoring/control systems; maintenance; record keeping; ECCC inspections and environmental emergency planning including emergency response plan.

The Consultant shall evaluate for compliance against the most recent applicable federal, provincial and territorial regulations, guidelines and codes including the Canadian Environmental Protection Act, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, CCME Environmental Code of Practice for Aboveground and Underground Storage Tanks Systems Containing Petroleum and Allied Petroleum Products, National Fire Code (2015 or most recent), Canadian Standards Association B139-09 (or most recent) Installation code for oil-burning equipment. The consultant shall also provide training and/or advice to federal employees on storage tank system operation, maintenance, inspection, environmental emergency response plans and spill response to ensure compliance to above-mentioned regulations, guidelines and codes. The training shall be conducted in person and/or by video conference in real-time or on demand. Resources to aid in training must be provided (paper, electronic, etc.).

Fuel storage tank design and site supervision will include but will not necessarily be limited to: generation of design specifications and drawings, contract tender support, site supervision of milestones (such as in concrete pad inspection) and commissioning of storage tank and piping systems; secondary containment; overfill protection; corrosion protection; monitoring and leak detection; maintenance and operation; safety accessories (e.g. bollards, signage, spill kits) and procedures; and the assessment and design of product transfer area and spill containment area to comply with current regulations. It will also include completion of storage tank standard operating procedures, environmental emergency response plans, product transfer area risk assessments, operation and maintenance manuals and as-built drawings.

RS 4 HAZARDOUS MATERIALS SURVEYS, AUDITS, ABATEMENT, AND DISPOSAL

Undertake surveys and prepare specifications for the assessment, audits, abatement, and disposal services associated with the following environmental issues:

1. Asbestos containing materials (ACMs)
2. Lead (e.g. paint and plumbing fixtures)
3. Polychlorinated biphenyls (PCBs)
4. Mercury
5. Pest presence
6. Ozone depleting substances (ODSs)
7. Moulds and fungi
8. Halocarbon
9. Radon
10. Propane
11. Silica
12. Petroleum products and allied petroleum products
13. Other hazardous waste/materials and dangerous goods.

- The primary objectives of a Hazardous Materials Survey are to identify; characterize; inventory, quantify and document hazardous materials presence and use.
- Surveys will focus on building related (structural materials and equipment) hazardous materials and may also include operational hazardous goods (bulk and packaged).
- The Consultant shall prepare a report outlining the complete findings of the Hazardous Materials Survey, including recommendations for additional work (if necessary). They may also be asked to prepare recommendations for the ongoing management of hazardous (building) materials, if required.
- The work shall include room-by-room and exterior surveys of all structures and collection of information on the presence (suspected or confirmed) of any hazardous material or as requested by the Project Authority. The extent and concentration (where possible) shall be noted.
- The survey shall include investigations for, but not be limited to: polychlorinated biphenyls (PCBs); asbestos containing materials (ACMs); lead; mercury; moulds and fungi; pest presence; hazardous/dangerous goods; ozone depleting substances (ODS); and storage tank systems (compliance assessments dealt with in a separate section).
- Provincial/territorial guidelines and regulations must be applied where required. For example, provincial/territorial asbestos abatement workers are still covered by provincial/territorial occupational health and safety legislation when working in a federal building.
- Material samples shall be taken to verify and/or determine the potential hazardous material type and concentration. Locations shall be referenced to site and building plans and photographs. Collected information shall be placed into a spreadsheet that can be utilized by personnel or contractors performing work on the buildings.
- The Consultant shall conduct specialized feasibility testing of abatement technology and applied scenario analysis, and produce OHS exposure modeling to determine hazards, risks and cost-effectiveness of approach for addressing site specific abatement requirements.
- The Consultant shall be responsible for developing the technical portions of specifications for Hazardous Material Abatement in the most recent version of the National Master Specifications (NMS) format in both official Languages or as requested by the Project Authority.
- The Consultant shall conduct site inspections during abatement as necessary to ensure appropriate abatement procedures are being followed, according to the specifications.
- The Consultant's responsibilities shall include Health and Safety Plans, review of Contractor Health and Safety Plans and ensuring that the containment area is properly set up and Health and Safety Plans are implemented as stated.
- The Consultant shall inspect post remediation work areas to determine whether areas are cleaned as required in the Terms of Reference (monitoring of contractor for adherence to the specification).

- Upon completion of the abatement project, the Consultant shall provide a letter of assurance detailing project methodology, contractor submittals and laboratory analysis results. The letter will represent a 'closure report' to show that all -the specified hazardous materials have been removed from defined areas and that the abatement area and adjoining work areas are free from impacts.

The types of projects in this category may include pre-abatement assessments, development of the scope of work for abatement/disposal projects and conducting, supervising, coordinating, and documenting abatement/disposal activities.

All work must be competed using the most recent, applicable federal and provincial legislation including Regulations, by-laws, Standards, Procedures, Guidelines, or best practices. Parks Canada Hazardous Materials Management Standard and Procedures (2023). Parks Canada Asbestos Management Standard (2020). Parks Canada Integrated Pest Management Standard (2020). When these departmental documents are updated or modified, the updated versions must be followed. The following tasks would typically be included:

- a) Timely assessment of the nature and extent of work related to asbestos, lead, PCB, mould and/or other hazardous and non-hazardous waste/materials requiring visual investigations, collection of samples and analysis, and recommendations for storage, abatement or remediation and disposal.
- b) Development of recommendations on courses of action to be taken, to prevent re-occurrence or correction of the sources with associated cost estimates.
- c) Preparation of a scope of work for abatement and detailed work procedures based on industry approved best practices and incorporation into standard PSPC specifications for the required work.
- d) Assist in the tendering and selection of contractors for the required work.
- e) Coordinate work with regulatory requirements such as permitting and notifications.
- f) Supervise work practices and procedures to ensure that specification requirements, regulatory requirements, industry standards, and proper health and safety procedures are followed.
- g) Where appropriate, provide environmental monitoring, such as surface wipe sampling, clearance testing and air monitoring as required at all times of the day (regular daytime work hours, after hours and weekends).
- h) Documentation of abatement activities including work performed, location, nature and extent of work, work practices followed, contractor performance, and monitoring results.
- i) Preparing and delivering guidance, training and presentation material pertaining to the assessment and abatement of hazardous materials and to conduct low and medium risk level work, for delivery to federal employees and/or for other information purposes.
- j) Expert advice and support related, but not limited to litigation, negotiations and compensation and similar matters.

Provision of services will require specification writing/ review from an individual who has 5 years direct experience in writing/reviewing NMS specifications for environmental abatement construction projects.

All laboratories used for performing analysis must be members of the Canadian Association for Laboratory Accreditation (CALA). If CALA accreditation for a specific parameter is not available, equivalent accreditation bodies will be accepted.

Hazardous waste must be identified, characterized, quantified, documented, and disposed of following to most stringent applicable federal, provincial/territorial, and municipal legislation and health and safety measures.

RS 5 DEMOLITION ASSESSMENT AND WASTE SURVEY

The primary objectives of a Demolition Assessment and Waste Survey shall include: identifying; characterizing; inventorying, quantifying and documenting both non hazardous and hazardous wastes for the purposes of demolishing infrastructure to facilitate the remediation and/or reclamation of a contaminated site.

Surveys shall focus on weight and volume of hazardous and non-hazardous wastes as well as packaging and transportation of wastes off-site, as required.

The Consultant will be expected to prepare a report outlining the complete findings of the Survey, including recommendations for additional work (if necessary).

Material samples will be taken to verify and/or determine the potential hazardous material type and concentration. Locations will be referenced to site and infrastructure plans and photographs. Collected information will be included in a report that will include a site map(s) (to scale) and an itemized spreadsheet that can be utilized by personnel or contractors performing the actual demolition and transportation work.

A cost estimate for removal and disposal of all hazardous and non-hazardous building materials and site infrastructure will be prepared. The Departmental representative will determine which Class estimate is required for the project and whether this estimate will be provided under separate cover.

For complex or sizeable projects, five categories of estimates are prepared. The process begins with the development of an initial estimate that is further developed during the early phases of the project.

Broad Cost Projection: based on historical data from similar projects, indicates a budget for resources to develop a project up to Preliminary Project Approval as well whether or not total project costs are expected to exceed \$1 million. This is not a construction estimate.

RS 6 SOLID WASTE MANAGEMENT

Solid Waste Management services that may be required are collecting, transporting, processing, composting, and disposing of solid waste. The solid waste includes but is not limited to:

- garbage
- recyclables
- organic materials
- electronics
- construction and demolition waste
- non-hazardous materials
- textiles

Waste reduction initiatives such as recycling and composting must be prioritized to minimize the amount of waste sent to landfill. Collected waste will need to be weighed in a consistent unit of measure (tonnes or kg) and recorded prior to processing. Waste audits need to be conducted to determine the composition and diversion rates. An analysis of options and proposed approach to reach DSDS targets for 2030.

DSDS targets for 2030:

- Divert at least 75% (by weight) of non-hazardous operational waste from landfills by 2030.
- Divert at least 75% (by weight) of plastic waste from landfills by 2030.
- Divert at least 90% (by weight) of all construction and demolition waste from landfills (striving to achieve 100% by 2030).

The scope of work for solid waste disposal could include but is not limited to:

- The Contractor may be required to supply and install bins for landfill waste, recyclable waste, or organic materials at specified locations.
- The Contractor is to ensure that bins (garbage, recyclable, organic) must be covered and lockable. Locks to be provided by contractor, with two copies of keys provided to PCA Project Authority. Contractor responsible for opening and locking as part of collection.
- The contractor is responsible for the care and maintenance of all bins and containers.
- The contractor is responsible for collecting waste and taking it to the appropriate facilities as per the Collection Frequency chart.
- The Contractor is responsible for cleaning up the bins and the area around bins (e.g. litter) at time of and after collection.

The contractor must be aware of and compliant with provincial and municipal operations, hours of operation and any other requirements of landfill and recycling sites for solid waste disposal at the facility. All applicable provincial and municipal standards, codes and regulations must be followed, and work must be performed in accordance with provincial and municipal Occupational Health and Safety Act and Regulations. Provincial and municipal requirements regarding noise control must be observed. PCA will provide a Collection Frequency and Location Chart as well as a map of the PCA sites.

Prepare and deliver guidance, training, and presentation material pertaining to the operation of various waste diversion systems as well as the monitoring and record keeping of solid waste management for delivery to federal employees and/or for other information purposes.

Waste Diversion, Reduction and/or Elimination:

- undertake waste audits to characterize waste streams or waste reduction work plans to eliminate waste generation and increase waste diversion.
- undertake 3rd party auditing and reporting of construction and demolition waste during construction projects.

The consultant may be requested to conduct a demolition waste assessment to identify, characterize, inventory, quantify, and document the waste to be created from a demolition project. The quantity and type of waste that can be diverted will have to be identified and a waste management plan will have to be developed.

RS 7 MOULD ASSESSMENT, DESIGN, ABATEMENT, AND MONITORING

The scope of work for this item includes three main tasks:

1. Mould Assessment and Reporting
2. Preparation of Specifications for Mould Abatement, including moisture control measures, as necessary, utilizing the most recent version of the National Master Specifications.
3. Monitoring of Mould Abatement

The Consultant shall conduct a site visit to perform a mould assessment according to accepted industry standards (CCA 82: Mould Guidelines for the Canadian Construction Industry) at which time they may quantify, in detail, the extent and type of mould-impacted building materials.

Materials shall be collected and analyzed using surface tape lift samples, spore trap air samples, and/or viable mould spore sampling if required for mould identification analysis.

If required, the Consultant must collect all information necessary to prepare Mould Abatement Specifications, including quantifications, during the assessment site visit.

A report shall be completed that shall provide detailed recommendations for the mould abatement work detailing which building materials should be replaced. The report shall include a summary of the areas sampled, sample results and recommendations for abatement. A cost estimate for the required mould abatement activities shall include mould abatement contractor costs and consultant supervision and monitoring costs throughout Abatement.

The Consultant shall be responsible for developing the technical portions of specifications for Mould Abatement in National Master Specifications (NMS) format in both official Languages.

The Consultant shall conduct site inspections during abatement as necessary to ensure appropriate mould abatement procedures are being followed, according to the specifications and the previous mentioned CCA document.

The Consultant's responsibilities shall include ensuring that the containment area is properly set up. The Consultant shall inspect post remediation work areas to determine whether areas are suitably cleaned.

The Consultant shall conduct air monitoring services prior to, during (if necessary), and following mould abatement activities, including collection of spore trap air samples for fungi enumeration (background and post remediation).

Upon completion of the abatement project, the Consultant shall provide a letter of assurance detailing project methodology, contractor submittals and laboratory analysis results. The letter will represent a 'closure report' to show that all mould-contaminated materials have been removed from defined areas, and that the resulting air quality of the abatement area and adjoining work areas are free from mould spore impacts.

The Consultant shall provide introductory and intermediate training, presentation materials, and information to federal employees on conducting low and medium risk level work with mould.

RS 8 ARCHAEOLOGICAL ASSESSMENTS AND CULTURAL RESOURCE MONITORING

Archaeological sites and historical sites are protected under distinct legislation, regulations, rules and procedures in the provinces and territories. The professional and accredited archaeologist responsible for conducting the work must be familiar with the applicable regulatory frameworks and hold permits with the relevant archaeological regulatory agencies to conduct a survey or intrusive investigation.

Typically, there are two types of permitting required: permitting for research that does not disturb or alter an archaeological site; and/or permitting for authorization to excavate, remove and collect artefacts. If artefacts are found, the archaeologist in charge is responsible for contacting the relevant regulatory agency to report the findings. If excavation of artefacts is required, the proper permitting must be obtained and the archaeologist will be required to show they have the proper planning, field training and necessary conservation methods in place to complete the excavation and removal activities to the satisfaction of the relevant regulatory agency.

Permitting is sometimes contingent on assistance from the local Indigenous/Inuit community by retaining their services. These groups have intimate knowledge of the area history and should be utilized where possible. Their presence may be required during any work performed below ground surface. The scope of the archaeological assessment will vary based on the jurisdiction and the type of proposed project but could include the following:

- Test excavations, using standard archaeological techniques, will typically be conducted to determine the presence of historic, pre-contract and paleontological remains. More intensive excavation may be required in those areas that are suggested by archival accounts to contain historic structures or activity areas. The site must be restored, and boreholes appropriately filled following auguring and/or excavations at the site.
- A review of site information, particularly geotechnical reports documenting subsurface soil strata in the immediate area and consultations with local Indigenous/Inuit cultural resource monitors, should be reviewed prior to finalizing the site sampling program.

The Consultant shall ensure that all records (field note entries, drawings, slides, artefact bag labels, etc.) include either the grid number or a full provenience number established by the excavation methodology. The consultant shall ensure that accurate and complete field notes are kept for all aspects of the project. All trenches shall be profiled with a scaled profile on one wall. All excavation units shall be profiled on two adjacent walls. Grid numbers must be attached. All features shall be drawn in Plan view. Grid numbers must be attached.

All artefacts shall be collected and bagged within the overall grid pattern. Some may require field preparation for conservation purposes. Concentrations of artefacts that appear to have cultural significance (remains of a fire, a pile of nails, multiple pieces of a larger entity etc.) shall be recorded as a feature.

All collected artefacts must be processed and identified. The artefacts are to be cleaned, sorted, assigned a number, and packed in bags with accompanying labels. Each artefact must have the following information recorded: a) Provenience number (or grid number and contractor's lab number), b) artefact identification number, c) quantity (if like items are grouped), d) material, and e) common name along with whatever other information is recorded.

The Consultant shall prepare a short memo report soon after completion of the field work documenting all findings.

The project report shall include the following:

1. full documentation of the field project and the methods used
2. detailed descriptions of each feature
3. an artefact inventory
4. an interpretation of the stratigraphy, linking isolated units together stratigraphically where possible and identifying the cultural context for each layer.
5. interpretation of features, activities, and artefact patterns, done to the extent possible given the nature of the excavation.
6. recommendations for mitigation that will minimize impacts to cultural resources provide maximum opportunity for archaeological salvage and maintain an efficient work program for the construction project.
7. all field photographs and originals of all plan views, profiles, and other drawings.
8. a scaled drawing of the field work area(s) indicating where the assessment was completed, where areas of significance were identified, and where excavation occurred (if applicable).
9. any additional requirements outlined by the regulatory jurisdiction (if applicable) shall be included as well.

RS 9 REMEDIATION CONSTRUCTION SERVICES

Consultants may be required to assist in developing and implementing environmental remedial options including site investigation, identification of significant aspects, preparation of detailed procedures, preparation of plans and drawings, specifications briefs, options and recommendations, tendering documentation as per PSPC approved National Master Specifications (NMS) standards and remedial cost estimates (indicative and substantive).

In some cases, Consultants may also be required to coordinate, supervise, monitor and verify site conditions during environmental remedial activities. Furthermore, the consultant may be required to undertake minor remedial projects, such as removal of debris and removal of leaking underground storage tanks.

Consultants may be retained to complete all or parts of the following tasks:

1. Identifying significant gaps in the delineation of contaminants at a site prior to remediation.
2. Provide or review indicative cost estimates of proposed remediation projects including estimates of volumes of media impacted by a contaminant of concern.
3. Design project specification briefs and associated tendering documentation for use by PSPC, using PSPC established NMS standards in the approved NMS-Edit Professional software format.
4. Ensuring any risk mitigation measures required or recommended from CEAA section 67 requirements are included in the project tendering documentation.
5. Providing assistance to PSPC during the tendering process of remediation/risk management measures projects, for example when responding to requests for clarification and issuing addenda.
6. Providing oversight and monitoring of remediation activities.
7. Planning and conducting appropriate confirmatory sampling prior to and during the completion stage of remediation or after risk management measures have been put in place.
8. Prepare a closure report upon completion of the remedial work documenting and certifying the remediation activities and or risk management measures implemented and to outline current conditions of the site.
9. Make recommendations for long and short-term monitoring post-remediation or post-risk management measures implementation.

Provision of specifications will require specification writing/review from an individual who has five (5) years of direct experience writing and reviewing NMS specifications.

Provision of Design drawings to be completed/reviewed by a Senior Technologist with experience with AutoCAD or equivalent design program (all files to be compatible with Microsoft® Operating Systems, the CADD drawing format required for drawings is the AutoCAD® native format DWG file CADD format – See PSPC National CADD Standard for more details at <http://www.tpsgc-PSPC.gc.ca/biens-property/cdao-cadd/index-eng.html>.

All laboratories used for performing analysis must be members of the Canadian Association for Laboratory Accreditation (CALA). If CALA accreditation for a specific parameter is not available, equivalent accreditation bodies will be accepted.

RS 9.1 PREPARATION AND REVIEW

The Consultant shall provide and co-ordinate full professional consulting services required during all phases of project delivery as outlined below but not limited to:

1. Provide engineering design services.
2. Visit the site to be familiar with all conditions of the site that may impact the project.
3. Provide site remediation design.
4. Review Environmental Impact Assessments and ensure that mitigation is properly incorporated into tender documents.
5. Review Environmental Audits/Baseline Studies (for all issues related to real property) and Environmental Site Investigations/Assessments and ensure that the project design captures issues presented here.
6. Review Risk Assessments to determine potential environmental and health implications of identified contaminant impacts may be conducted.
7. Review Contaminated Sites Remediation and other Remediation Action Plans and ensure that project design meets the requirements and objectives of these documents.
8. Review all phases of Environmental Assessments including Infrastructure and Demolition Assessment.
9. Review Hazardous Materials Listing and Identification, Asbestos Sampling and Listing, Environment Sampling and Waste Surveys.
10. Review Geotechnical, Hydrology, Hydrogeology, Geomorphological and Geophysical Investigations.
11. Review Contaminant Characterization and Water Quality, Aquatic and Terrestrial Biota and Wildlife Assessment.
12. Preparation of full set of Tender Documentation including specifications, drawings and Class "A" (Substantive, +/- 5%) cost estimate. Cost estimate to be prepared by certified professional estimator such as a Designated Professional Quantity Surveyors (PQS) or Construction Estimator Certified (CEC), or by an estimator with equivalent credentials or extensive experience providing estimating services in the North.
13. Interpretation and/or adherence to all applicable codes, Environmental, Fire, Health and Safety Requirements, other specific codes or standards.
14. Interpretation and/or adherence to Land and Water Use Licenses.

RS 9.2 DESIGN AND SPECIFICATIONS

The objective of the Construction Documents is to prepare tender ready drawings and specifications, setting forth in detail all the requirements for the construction of the project along with a final Class "A" (Substantive, +/- 5-10%) cost estimate. All specifications are to be completed in accordance with the most recent version of the Canadian National Construction Master Specifications (NMS). Cost estimate to be prepared by certified professional estimator such as a Designated Professional Quantity Surveyors (PQS) or Construction Estimator Certified (CEC), or by an estimator with equivalent credentials or extensive experience providing estimating services.

The Consultant must obtain written authorization from the Departmental representative before proceeding with construction documents.

The Departmental representative will respond to questions from the Consultant as required, review and accept the final the Construction Document progress at 75% and 99% and formally accept documents ready for Tender.

The Consultant will provide the 75% and 99% submissions general requirements as follows but not limited to:

1. Regulatory and detailed analysis.
2. Obtain acceptance for submissions (75%, 99% and final).
3. Confirm format of drawings and specifications.
4. Clarify special procedures (i.e. phased construction).
5. Submit drawings and specifications at the required stages (75%, 99% and final).
6. Provide written response to all review comments and incorporate them into Construction Documents.
7. Advise as to the progress of cost estimates and submit updated cost estimates as the project develops.
8. Provide project schedule.

9. Prepare a Class "B" (Substantive, +/- 10%) and Class "A" (Substantive, +/- 5%) estimate. Cost estimate to be prepared by certified professional estimator such as a Designated Professional Quantity Surveyors (PQS) or Construction Estimator Certified (CEC), or by an estimator with equivalent credentials or extensive experience providing estimating services.

75% Submission Stage Deliverables

The Consultant will provide the 75% submission deliverables as follows but not limited to:

1. Submit the Class "B" (Substantive, +/- 10%) cost estimate.
2. Submit the project schedule.
3. Specifications to be 75% edited with all pertinent sections.
4. 75% drawings to include but not limited to, Aerial Photographs, Site Plan, Demolition Plan, Impacted Areas Plan, Sections and Details, General Notes, Design codes used, Strength and grades of materials used, Special construction requirements.
5. Provide co-ordination of all drawings.

99% Submission Stage Deliverables

The Consultant will provide the 99% submission deliverables as follows but not limited to:

1. Submit written response to PSPC review on comments made at 75% stage.
2. All working drawings and specifications co-ordinated with the Specifications.
3. Submit the Class "A" (Substantive, +/- 5%) cost estimate. Cost estimate to be prepared by certified professional estimator such as a Designated Professional Quantity Surveyors (PQS) or Construction Estimator Certified (CEC), or by an estimator with equivalent credentials or extensive experience providing estimating services in the north.
4. Submit the updated project schedule.
5. Submit 99 % edited specifications.
6. Submit 99% complete set of co-ordinated construction drawings, including details, sections, plans and schedules including information on drawings will fully comply with codes and standards.

RS 9.3 SUBMISSIONS, REVIEW AND APPROVAL PROCESS

The Consultant will provide all required submissions, either to, as identified by the Departmental representative.

The Consultant will provide required sets of Construction Drawings and Specifications to the Departmental representative for review at the 75% and 99% submission stage.

Provide one original set of Construction Drawings and Specifications to the Departmental Representative ready for Tender.

The Consultant will provide deliverables as per the documentation and Submission Standards established by PSPC outlined in Appendix E. All reference to Public Services and Procurement Canada should be deleted and replaced with Parks Canada Agency.

The purpose of review and approval process is to ensure compliance with the project program, adherence to good design practice and technical quality assurance.

RS 9.4 TENDERING DOCUMENTS

The Consultant will provide the 100% submission deliverables as follows but not limited to:

1. Written response to the Departmental Representative to review comments made at 99% stage

2. All original reproducible drawings and specifications for tendering purposes, 100% reviewed and coordinated, incorporating all PCA comments made at the 99% stage, either in the documents themselves, if time allows, or as an addendum during the tendering period.
3. Submit all drawings and specifications 100% reviewed and co-ordinated for Tender call.
4. Submit all specification sections and an index of specifications. The specifications will consist of typed and edited NMS sections.
5. Submit final project schedule.
6. Submit Revised Class "A" (Substantive, +/- 5%) level cost estimate, if needed. Cost estimate to be prepared by certified professional estimator such as a Designated Professional Quantity Surveyors (PQS) or Construction Estimator Certified (CEC), or by an estimator with equivalent credentials or extensive experience providing estimating services through a third party private sector subcontractor specialist.
7. The Consultant will provide deliverables as per Appendix E.
8. The Consultant will provide submit and obtain formal acceptance on plans and specifications required by Inspection Authorities before Tender call.
9. A set of digitized specifications on CD or DVD disk(s) or by e-mail/FTP sharepoint site, in PDF (Portable Document Format), book marked by section and drawing files on CD or DVD disk(s) or by e-mail, in PDF, as requested by the Departmental Representative.

RS 9.5 TENDERING ASSISTANCE

9.5.1 General

PCA will undertake public tendering of the Project. The Consultant's original Tender documents are used to produce sets of prints required for Tender call. The Contract Authority issues all necessary addenda to the recipients of the Tender Documents. Addenda are to be prepared as required, by the Consultant.

The Consultant will provide assistance during the tendering process including preparation of addenda and review of tender results (PSPC carries out the tendering process).

9.5.2 Bidder's Conference

During the tender period, the Contracting Authority may arrange a bidders conference to clarify requirements of the Project.

The Consultant will attend and prepare necessary addenda for issue by the Contracting Authority. Questions arising in such meetings will be answered by written addenda only, issued by the Contracting Authority.

All enquiries from bidders during the tender period shall be forwarded immediately to the Contracting Authority named on the front page of the Invitation to Tender, without providing any information to the inquirers. The Contracting Authority will obtain technical answers through the Departmental Representatives and will publish both questions and answers to all bidders at the same time, and will issue clarifications with publication.

9.5.3 Document Interpretation

Provide the Departmental Representative with all information required by tenderers to fully interpret the Construction Documentation, including sample boards, colour boards and other special reports.

9.5.4 Addenda

The Consultant will prepare addenda to Tender Documents when necessary for issue by the Contracting Authority.

The Consultant will reissue all drawings and specification upon award if contract incorporating all addenda items.

The Contracting Authority will issue all addenda in writing (no information is to be issued orally), and may issue an addendum by facsimile.

RS 10 SITE SUPERVISION AND CONTRACT ADMINISTRATION SERVICES

RS 10.1 GENERAL

The Consultant will provide Site Supervision and Construction Contract Administration Services as outlined below but not limited to:

- 1 Monitor the progress of Contractors' work, compliance with all drawings and specifications, time schedules, quality standards and progress reports.
- 2 Convey instructions regarding the required standards of workmanship to the Contractor.
- 3 Communicate formally with the Contractor via memorandum form only. When this form is issued, the Consultant will immediately file copies with the Departmental representative.
- 4 Accompany the Departmental representative on inspections and record comments or instructions of the Departmental representative.
- 5 Provide inspection for all aspects of the project, maintaining daily records of all work.
- 6 Attend meetings as required by the Departmental representative.
- 7 Review reports on Health and Safety strategies for stage of work.
- 8 Review and process shop drawings.
- 9 Provide detailed drawings, clarification instruction, Contemplated Change Notices and Change Orders as required.
- 10 Review testing methods, data of inspection/testing agencies.
- 11 Report on Contractors maintaining specified quality and schedules, ensuring that Contractors are monitoring delivery of critical materials and equipment.
- 12 Consider and evaluate any suggestions or modifications to the documents advanced by the contractor and immediately report these to the Departmental representative with written review comments.
- 13 Ensure that the Departmental representative is notified promptly when key pieces and / or components of materials and equipment are delivered, so that these parties can arrange for the appropriate personnel to have an opportunity to inspect same prior to installation.
- 14 Review and make recommendations on progress claims.
- 15 Verify quantities of materials received and record work progress through photographs.
- 16 Issue interim and final deficiency reports.
- 17 Finalize project documentation and accounts.
- 18 Recommend (if required) in release of holdback upon satisfactory completion.
- 19 Follow-up on any problems identified by the Client arising during the warranty period.
- 20 Prepare and submit as-built drawings and specifications.
- 21 Other reporting as per regulatory agencies.

The Sub-Consultants or Specialty Consultants will be required to perform specialized on-site Inspections as outlined below, but not limited to:

- 1 Environmental Inspection including, but not limited to, supervision of soil excavation activities, collection of samples, inspections, reporting of results, confirmation of compliance to all permits and assistance to the Departmental Representative.
- 2 Geotechnical inspections including, but not limited to, various testing of materials to meet the specifications, compaction testing, supervision of material placements, confirmation of compliance to all permits and assistance to the Departmental Representative.
- 3 Other technical inspections based on the nature of the project including, but not limited to, industrial/occupational hygiene, mine waste chemistry, mine water treatment, PFAS treatment, confirmation of compliance to all permits/licenses and assistance to the Departmental Representative.

RS 10.2 SITE SAFETY

All projects that are occupied by federal employees are subject to the Canada Occupational Safety and Health Act and Regulations as administered by Health and Welfare Canada.

In addition to the above, the Contractor must comply with provincial and municipal safety laws and regulations, and with any instructions issued by the officers of these "Authorities Having Jurisdiction" relating to construction safety.

Notify the Departmental Representative immediately if human remains, archaeological remains and items of historical or scientific interest are discovered on the site and obtain further information on action to be taken.

The Departmental Representative will adhere to the Contractor's Site Specific Health and Safety Plan.

RS 10.3 SITE MEETINGS

The Departmental representative will arrange site meetings as defined in specification, throughout the entire construction period. Attendees to include:

- 1 Stakeholders
- 2 PCA in-house staff
- 3 Prime Consultant
- 4 Prime Consultant's Subcontractors and Specialist Consultants as determined by Departmental Representative;
- 5 Contractors and their Consultants and Subcontractors.

The Consultant will attend the meetings, record the issues and decisions and prepare and distribute minutes to all attendees within two (2) days of the meeting.

RS 10.4 PROJECT SCHEDULE

Immediately upon receipt of the Project Schedule from the Contractor, after agreement award, review and verify whether the schedule is reasonable and has all detailed components of work shown separately. Provide review comments and advice to the Departmental Representative.

Use the schedule as the basis for evaluating the progress of the work, once the Departmental representative has accepted the Contractor's Project schedule.

Record all discrepancies and recommend remedial measures to the Departmental Representative.

Keep accurate records of causes of delays.

Assist the Contractor to avoid delays by providing timely reports and advice.

RS 10.5 RECORDS

When specified by the project documents that a fulltime Resident Engineer is required the Resident Engineer shall keep a daily log recording:

- 1 Weather conditions, particularly unusual weather relative to construction activities in progress.
- 2 Major material and equipment deliveries.
- 3 Daily activities and major work done.
- 4 Health and Safety meetings.
- 5 Start, stop or completion of activities.
- 6 Presence of inspection and testing firms, tests taken and results.
- 7 Unusual site conditions experienced.
- 8 Significant developments, remarks.
- 9 Special visitors on-site.
- 10 Authorities given Contractor to undertake certain or hazardous works.
- 11 Environmental incidents.
- 12 Reports.
- 13 Stop work requests by the Departmental representative.

The Resident Engineer shall keep a daily log of all inspections and shall issue a weekly written report to the Departmental Representative in the form directed.

The Departmental Representative will prepare weekly reports of but not limited to:

- 1 Progress relative to schedule.
- 2 Major activities commencing or completed during the week; main activities now in progress.
- 3 Major deliveries of materials and / or equipment.
- 4 Difficulties which may cause delays in completion.
- 5 Materials and labour needed immediately.
- 6 Cost estimates of work completed and materials delivered.
- 7 Outstanding information or action required by the Departmental representative.
- 8 Work force, including the number of Aboriginal/Inuit working on site.
- 9 Remarks.
- 10 Accidents on-site.
- 11 Life safety or building hazards caused by the work, the Contractor or their agents.

RS 10.6 BUDGET/CASH FLOW

Review value of progress of work against the approved cost breakdown. When each trade is regularly reviewed against the Project Schedule and the cost breakdown, it quickly becomes apparent whether the Contractor is on budget and is generating the appropriate cash flow for the work.

Record all discrepancies and agreed remedial measures.

RS 10.7 SHOP DRAWINGS

Review, discuss, record problems and identify agreed remedial action.

Monitor and record the progress of shop drawing review. Record parties designated for action and follow up.

On completion of project, forward three copies of reviewed shop drawings to the Departmental Representative. Verify that shop drawings include the project number and are recorded in sequence.

Verify the number of copies of shop drawings required. Consider additional copies for others such as the Authorities Having Jurisdiction office.

Shop drawings will be stamped: "Checked and Certified Correct for Construction" by the Contractor and stamped: "reviewed" before returning to the Contractor.

Expedite the processing of Shop Drawings in a timely manner.

RS 10.8 CLARIFICATIONS DURING CONSTRUCTION

The Consultant will provide clarifications on Plans and Specifications or site conditions, as required in order that project not be delayed.

Record Contractor's acknowledgement of receipt of all clarifications.

Verify and records whether an impact on cost or schedule may be expected and advise the Departmental Representative.

Provide the Departmental Representative information with any additional detail drawings as and when required to properly clarify or interpret the Contract Documents, in a timely manner.

RS 10.9 WORK MEASUREMENT

If work is based on unit prices, measure and record the quantities for verification of monthly progress claims and the Final Certificate of Measurement.

When Contemplated Change Notice is to be issued based on Unit Prices, keep accurate account of the work and record dimensions and quantities.

RS 10.10 INSPECTIONS AND SUPERVISION

The Departmental Representative will provide daily inspections as follows but not limited to:

- 1 Assess quality of work and identify, in writing to the Departmental representative, all defects and deficiencies observed at time of such inspections.
- 2 Inspect materials and prefabricated assemblies and components at their source or assembly plant, as necessary for the progress of the project.
- 3 Any directions, clarifications or deficiency lists will be issued in writing to the Departmental representative, with a copy to the Contractor.
- 4 Keep the Departmental representative informed of the progress and quality of the work and report any defects or deficiencies in the work observed during the course of the site reviews.
- 5 Make on-site observations and spot checks of the work to determine whether the work, materials and equipment conform with the Contract Documents and supplementary documentation.
- 6 Advise the Contractor of any deficiencies or unapproved deviations via memorandum and report immediately to the Departmental representative any of these on which the Contractor is/are tardy or refuses to correct.
- 7 Report if materials and equipment are being incorporated into the project prior to approval of relative shop drawings or samples.
- 8 Assist in the preparation of all deficiency, interim, preliminary, and final reports in collaboration with the Departmental representative.
- 9 Be responsible for the measurement of all work to be done on a unit-cost basis.
- 10 Be responsible for the measurement of percentage completion of lump sum item.

RS 10.11 SPECIALIZED INSPECTION AND TESTING

Prior to tender, the Consultant must provide the Departmental representative with a recommended list of tests to be undertaken, including on site and factory testing. Include items in agreement specifications as necessary.

The Consultant shall provide testing services as required, distribution of reports, communication lines, etc. Where the Contractor is providing testing services the consultant will review all test results done by the Contractor.

The Consultant must review all test reports and take necessary action with Contractor when work fails to comply with contract requirements. The Departmental representative must be immediately notified when tests fail to meet project requirements and when corrective work will affect the schedule.

RS 10.12 CONSTRUCTION CHANGES

The Consultant does NOT have authority to change the work or the price of the construction contract. Approved Change Orders must be issued to cover all changes, including those NOT affecting the cost of the project, such as schedule, substitutions, etc.

The Consultant must prepare Contemplated Change Notices (CCNs), review quotations associated with Change Orders (CO's). This includes monitoring and recording the progress of CCN's and CO's. Where work must proceed pending issue of a Change Order, the Consultant must record time and materials expended.

Changes that affect cost or design or otherwise alter the terms of the agreement must be accepted and approved by the Departmental Representative. Upon approval from the Departmental Representative, quotations must be

obtained from the Contractor in detail. Prices are then reviewed and recommendations forwarded to the Departmental Representative.

The Departmental Representative will then provide the CCNs and COs to the Contracting Officer who will issue a final approved CO package to the Contractor, with a copy to Consultant.

RS 10.13 CONTRACTOR'S PROGRESS PAYMENTS

Each month, the Consultant submits a progress claim for work and materials as required in the Agreement. The claims are made by completing the following forms where applicable:

1. Request for Payment.
2. Cost Breakdown for Unit and/or combined Price Contract or Cost Breakdown for Fixed Price Contract.
3. Statutory Declaration: Progress Claim.

The Consultant must determine the amounts owing to the Contractor based on the progress of the work and certify payments to the Contractor.

The consultant must review and sign designated forms and promptly forward claims to the Department Representative for processing. Obtain the following information from Contractor and submit with each progress claim:

1. Updated schedule of the progress of work.
2. Photographs of the progress of the work.

RS 10.14 PAYMENT FOR MATERIALS ON SITE

The Contractor may claim for payment of material on site, but not yet incorporated in work.

Material will be stored in a secure place designated by the Departmental representative.

A detailed list, checked and verified by the Consultant, of materials with supplier's invoice showing price of each item will accompany each claim.

Items will be listed separately on the Detail Sheet showing the breakdown list and total.

RS 10.15 INTERIM INSPECTION

When PCA is satisfied that construction work is substantially complete, they will issue an Interim Certificate of Completion to the Contractor.

Payment to the Contractor requires completion and signing, by the parties concerned, of the following documents:

1. Interim Certificate of Completion
2. Cost Breakdown for Fixed Price Contract
3. Cost Breakdown for Unit or Combined Price Contract
4. Inspection and Acceptance
5. Statutory Declaration: Interim Certificate of Completion
6. Worker's Compensation Board Certificate

The Consultant must verify that all items are correctly stated and ensure that completed documents and any supporting documents are given to the Departmental Representative for processing.

RS 10.16 FINAL INSPECTION

The Consultant must inform PCA when satisfied that all work under the agreement has been completed, including all deficiency items listed during the Interim Inspection. The Departmental representative reconvenes the Acceptance Board, which makes a final inspection of the project. If everything is satisfactory, the Board makes final acceptance of the project from the Contractor.

The final payment to Contractor requires completion and signing by the parties concerned, of the following documents:

1. Final Certificate of Completion
2. Cost Breakdown for Fixed Price Contract
3. Inspection and Acceptance
4. Statutory Declaration Final Certificate of Completion
5. Cost Breakdown for Unit and/or Combined Price Contract
6. Worker's Compensation Clearance Certificate
7. Trades' Certificates as appropriate

The Consultant must verify that all items are correctly stated and ensure that completed documents and any supporting documents are given to the Departmental representative for processing.

The Consultant shall continue to monitor the situation and communicate with the Departmental Representative to ensure that he/she is aware of any deficiency work being delayed beyond reasonable time frames.

RS 10.17 AS-BUILT AND RECORD DRAWINGS AND SPECIFICATIONS

The Consultant must produce as-built drawings for areas that show deviations in construction from the original Contract drawings, including changes shown on Post-Contract Drawings, changes resulting from Change Orders or from on-site clarifications. For Design-Build projects, the Design-Build team to submit As-built drawings to be examined by the Owner's Engineer.

Check and verify all as-built records for completeness and accuracy and submit to PCA.

Produce Record Drawings by incorporating As-Built information into project drawings. Electronic versions are required for both Drawings and Specifications.

Submit Record Drawings and Specifications in number and format required by the Agreement within six (6) weeks of final acceptance.

Provide a complete set of final shop drawings and list of changes to specifications.

RS 10.18 POST CONSTRUCTION

All work under the Construction (or Design-Build) Contract carries a standard twelve (12) month warranty commencing on the effective date of the Interim Certificate of Completion. Certain parts of the work, such as joints and bearings, may have extended warranties as specified.

The Contractor is responsible for correcting all defects in the work during the warranty period, except for damage caused by misuse, abuse or neglect by others.

The Departmental representative will promptly notify the Consultant in the event that defects or alleged defects appear in the work of the Contractor.

The Consultant shall investigate all defects and alleged defects in the work promptly and issue appropriate information and advice to the Departmental Representative.

The Consultant shall provide information and advice during post construction evaluation sessions.

RS 11 Scope of Work, Tasks and Required Services for Sustainability, Energy and GHG Emissions Reduction and Climate Resiliency Project Streams

Globally, the effects of climate change are evident. Canada is experiencing warming at a rate that is about double the average global rate with the northern parts of the country warming at upwards of 3 to 4 times the average global rate over the past 50 years. Impacts such as coastal erosion, thawing permafrost, increases in frequency and length of heat waves, droughts, wildfires and flooding, ecosystem changes risks to critical infrastructure and impacts to food and water are already being felt in Canada and around the world. The science is clear that human activities are driving unprecedented changes in the Earth's climate, which pose significant risks to human health, security, biodiversity and economic growth.

Canada's response to climate change requires action to: reduce greenhouse gas (GHG) emissions to the atmosphere increase the resilience of assets, services and operations by adapting to a changing climate

The Greening Government Strategy demonstrates leadership on climate action with specific commitments that federal organizations are striving to achieve. The Greening Government Strategy is aligned with and supports Canada's sustainability goals under the Paris Agreement on climate change, the Pan-Canadian Framework on Clean Growth and Climate Change, United Nations' 2030 Agenda for Sustainable Development the Federal Sustainable Development Strategy and commitments under the Convention on Biological Diversity. The Greening Government Strategy, commits federal organizations to greening operations within four key focus areas:

- mobility and fleet;
- property and workplaces;
- climate resilient services and operations; and,
- procurement of goods and services.

The project streams requested under this request for services seeks to support Parks Canada in meeting and exceeding its sustainability, climate mitigation and resiliency goals.

RS 11.1 Project Stream 1 – Sustainability

Parks Canada endeavours to manage its real property in a manner that optimizes the use of innovative sustainable building practices and materials and promotes an integrated approach from the earliest stages of a fit-up, major renovation, or new construction project. Parks Canada requires consulting services to assist with meeting Departmental Sustainable Development Strategy (DSDS) commitments and Greening Government Operations policy requirements.

The contractor must perform the following tasks and/or, services and produce deliverables on an "as-and- when" required basis. Timelines for each task, services and/or deliverable will be specified in each callup under the Standing Offer agreement.

RS 11.1.1 Conduct Feasibility Studies / Options Analysis for existing buildings to evaluate if and how sustainability requirements will impact present and future business decisions.

RS 11.1.2 Develop a National/Regional Sustainable Development and Environmental strategies and plans in accordance with commitments under the Federal Sustainable Development Strategy and Greening Government Strategy. Any such work would be delivered and or coordinated by Parks Canada Agency National Office.

RS 11.1.3 Certifications: undertake 3rd party building certification processes using the current version of specified evaluation tools to support interior fit-ups, renovations, new construction, or building operation and maintenance, including but not limited to:

- Green Globes Suite
- Green + Productive Workplace
- Living Building Challenge
- Building Owners and Managers Association, Building Environmental Standards (BOMA BEST)

- Building Research Establishment Environmental Assessment Method (BREEAM)
- Leadership in Energy and Environmental Design (LEED)
- Passive House
- WELL Building Standard
- Fitwel
- RetroPHI
- BC Step Code
- Toronto Green Standard
- Energy Star
- One Planet Living
- SITES
- Zero Carbon Building Standard

RS 11.1.4 Conduct other field and desktop studies related to sustainable materials, water and waste in building systems, operations and managed on Parks Canada Agency sites or assets.

RS 11.1.5 Materials:

- Undertake the assessment of existing and new building materials using Life-Cycle Assessment (LCA) techniques using 3rd party verification tools such as Athena Sustainable Materials Institute's Environmental Impact Estimator or EcoCalculator (EIC/EC) tool or equivalent.
- Complete LCA procurement strategies assessing potential for specific LCA performance indicators for project output specs, informing on availability of Environmental Product Declarations (EPDs) per materials categories.
- Investigate new and evolving material technology innovations (and applications/feasibility thereof) in biomimicry, phase changing, natural and biodegradable, re-purposed, etc.

RS 11.1.6 Water quality studies: undertake water and wastewater quality assessments and investigations. Services may include water quality sampling, analysis, interpretation of results and reporting of results to Parks Canada. Waters subject to assessment and investigation may include rainwater, surface water, ground water, potable water, grey water, sanitary sewage/treated effluent and stormwater systems.

RS 11.1.7 Waste Diversion, Reduction and/or Elimination: 1. Undertake waste audits to characterize waste streams or waste reduction work plans to eliminate waste generation and increase waste diversion. 2. Undertake 3rd party auditing and reporting of construction and demolition waste during construction projects.

RS 11.1.8 Life Cycle Assessment (LCA): Conduct LCA on projects or products according to ISO 14040 and ISO 14067 standards, including financial LCA.

RS 11.1.9 Health and Wellness:

- Develop/assess health and wellness and comfort in building design strategies and or undertake feasibility assessments, analysis of, and/or 3rd party verification of a building health, wellbeing, or productivity standard such as Fitwel, Green + Productive Workplace, the Well Building Standard, or equivalent; incorporate industry recognized health and wellness measures into the design where feasible.
- Develop Stakeholder Engagement programs (including but not limited to communication plans and outreach material).
- Undertake indoor working environment assessments, including but not limited to, indoor air quality, noise, lighting, and thermal comfort.

RS 11.2 Project Stream 2 – Energy and GHG Emissions Reductions

The Government of Canada committed internationally to reduce national greenhouse gas emissions at the 2015 climate change conference in Paris. Through Canada's 2030 Emissions Reduction Plan, the Government is working with provincial and territorial governments to meet a national target of 40% to 45% below 2005-06 levels by 2030 with the long-term objective of net-zero emissions by 2050. Under the Federal Sustainable Development Strategy,

federal organizations are expected to demonstrate leadership by meeting the 40% reduction target by 2025 and of net-zero operations¹ by 2050.

Parks Canada must adhere to the commitments set out in the Federal Sustainable Development and the Greening Government Strategies. As of 2021-22, Parks Canada has achieved a 14% reduction in operational GHG emissions and anticipates that it will meet the reduction target of 40% by 2025 through the application of Clean Electricity² Initiative led by Public Services and Procurement Canada.

The contractor must perform the following tasks and/or, services and provide deliverables on an “as and when” required basis. Timelines for each task, services and/or deliverable will be specified in each callup under the Standing Offer agreement. Tasks of similar nature requiring the same professional knowledge, expertise, and experience could be asked during the term of the Standing Offer.

RS 11.2.1 Conduct energy and/or carbon studies or plans: to be completed on buildings, portfolios or other Parks Canada infrastructures to determine the feasibility of achieving the Government of Canada’s greening government commitments.

RS 11.2.2 Undertake GHG emissions quantification analysis and inventory for direct (Scope 1 and 2) and indirect (Scope 3) government operations. Scope 3 GHG emissions includes but is not limited to: embodied carbon, business travel and employee commuting, leases, green procurement, waste management, events, materials, etc.

RS 11.2.3 Prepare GHG emission Reduction Action plans that strategically identify measures that prioritize significant GHG emissions reductions.

RS 11.2.4 Undertake GHG Life Cycle Cost Analysis (GHG LCCA) to evaluate project options based on their energy savings, energy costs savings, GHG emission savings opportunity, capital cost and lifecycle cost in accordance with the *Real Property GHG Life-Cycle Cost Analysis Guidance* from the Treasury Board Secretariat’s Centre for Greening Government.

RS 11.2.5 Conduct retro-commissioning studies to examine the interactive functions of building equipment and systems to:

- resolve problems that occurred during building design or construction, or
- address problems that have developed during an existing building’s life.

RS 11.2.6 Undertake efficiency studies to identify energy saving and GHG emissions reductions opportunities. Energy audits can range from Level 1 (Walk through analysis) to Level 3 (Detailed Analysis) according to, but not limited to ASHRAE or EnerGuide Procedures for Building Energy Audits.

RS 11.2.7 Undertake studies to evaluate and inventory embodied carbon in construction materials and/or other components for an existing building or other type of asset.

RS 11.2.8 Conduct half-life recapitalization project feasibility studies:
Many Parks Canada buildings across the country are approaching the end of their service life and must be rehabilitated to extend their service life to continue serve their intended function in support of Parks Canada’s mandate. Early analysis is required to enable decision-makers to select the best balance between financial and sustainability considerations.

RS 11.2.9 Conduct continuous commissioning:
Commissioning Authority or Agent (CxA) to work with project teams post occupancy to implement ongoing commissioning and training and system adjustments to refine building systems functioning for optimal performance, address challenges and match performance with design intent.

¹ Net-zero means reducing GHG emissions from operations to as close to zero as possible and then balancing out any remaining emissions with an equivalent amount of carbon removal.

² Clean energy is defined as energy from non-GHG emitting sources, including hydro, nuclear, wind, solar, geothermal, tidal, etc.

RS 11.2.10 Prepare energy /models and conduct energy simulations using RETScreen building energy modelling software or other software meeting ASHRAE 140 standard.

RS 11.3 Project Stream 3 - Climate Resiliency:

Parks Canada is committed to becoming a leader in climate change resiliency. With operations in all regions of the country, climate change risks to, and impacts on Parks Canada places are dynamic and complex. An effective way for Parks Canada to advance climate change resiliency efforts across Canada is to lead by example, specifically by building resilience into federal assets, programs and services against the impacts of climate variability and change. This means ensuring that climate change considerations are integrated into activities, policies, programs and operations – across all Parks Canada’s program areas of responsibility as identified in the Agency’s 2020 National Climate Change Risk Assessment. Those areas are natural heritage; cultural heritage; built assets; visitor experience; and, health, safety and wellness (employees, contractors and the public). The Government of Canada’s Greening Government Strategy sets out commitments that are specific to climate change adaptation and resilience of federal assets, programs and services. In accordance with strategy, Parks Canada must:

- Understand and address the range of adverse climate change impacts that could potentially affect Parks Canada assets, programs, services and operations across the country;
- Develop measures to reduce climate change risks to assets, services and operations including incorporating climate change considerations into business continuity planning or equivalent processes and integrating climate change adaptation into the design, construction, and operation aspects of all major real property assets; and,
- Adopt climate-resilient building codes.

To complement its national climate change risk assessment, Parks Canada experts work with sites across Canada to develop site-specific climate trends and projections, and the associated risks and impacts and support site-specific climate change adaptation planning. As part of adaptation planning, Parks Canada delivers climate change adaptation planning workshops, based on the *Climate Change Adaptation Framework for Parks and Protected Areas* (PCA led the development of this framework through the Canadian Parks Council). Twenty-four workshops (in-person and virtual) have been delivered since 2017 at sites across the country, focused on adaptation planning for natural heritage and ecosystems, cultural heritage assets, and the full suite of Parks Canada’s program areas of responsibility. The workshops are scalable and can be delivered by staff in a self-directed manner at Parks Canada sites, co-planned and co-delivered by staff at sites in collaboration and consultation with national office experts, or co-planned and delivered by 3rd party facilitators with site staff and national office experts. Standardized adaptation planning guidance, tools and resources, and climate science and adaptation expertise, are available to site staff through national office experts regardless of the scale of adaptation planning exercise/workshop.

The contractor must perform the following tasks, and/or services and produce deliverables on an “as-and-when” required basis. Timelines for each task, services and/or deliverable will be specified in each callup under the Standing Offer.

RS 11.3.1 Conduct literature reviews, evidence syntheses and, where appropriate, studies in Climate Change Adaptation and climate-resilient design of buildings, engineering assets and infrastructure, including considerations for the natural environment and nature-based solutions, coastal infrastructure, social and health services, and risk treatment and/or adaptation plans.

RS 11.3.2 In collaboration with appropriate Parks Canada staff, co-design and facilitate single-event or multi-part virtual or in-person climate change adaptation planning meetings and workshops focused on specific Parks Canada places and/or groups of places in the same region, using Parks Canada’s existing Adaptation Framework and adaptation planning guidance, tools and resources/materials, encompassing but not limited to: ecosystems/natural heritage, cultural heritage, built assets, visitor experience, and health, safety and wellness. Participants in the adaptation planning meetings and workshops may include Parks Canada managers and staff, Indigenous partners, F/P/T municipal and Indigenous government representatives, and external stakeholders (e.g., NGOs, local businesses, etc.) depending on the Parks Canada place(s) in question. These processes would meet the description of adaptation planning workshops provided above, i.e., meetings or workshops co-planned with Parks Canada staff and delivered by 3rd party facilitators with support from site staff (to provide local context and

outline values at risk and planning objectives) and national office experts (to provide an overview of climate change trends and projections and the associated risks and impacts).

RS 11.3.3 In support of adaptation planning meetings or workshops, conduct Climate Change risk or vulnerability assessments: studies which assess the impact of the changing climate on Parks Canada's mandate, programs, portfolio, assets and infrastructure, the natural environment, (including ecosystem resilience and ecological integrity) events, programs and recreational activities; natural resource sectors and social and health services or activities which are at risk from climate change hazards. In consultation with Parks Canada staff, and where appropriate for the Parks Canada asset, program and/or service in question, studies can be conducted following an established process, including but not limited to processes outlined in ISO 31000 Risk Management – Principles and Guidelines, PIEVC Engineering Protocol, BOMA guideline, CSA Standards, the NatureServe Climate Change Vulnerability Index (CCVI) for species, the Climate Vulnerability Index, the Commission for Environmental Cooperation's Marine Rapid Vulnerability Assessment Tool (Marine RVAT), the Climate-smart Conservation Standards process, and/or other recognized industry process.

RS 11.3.4 Conduct Climate Change Risk studies: studies to identify present and future climate conditions, present and future climate hazards specific to assets and/or infrastructure (including federal transportation such as bridges, or airports etc.), and or a regional portfolio and take advantage of potential new opportunities. This can include the natural environment, events, programs and recreational activities; resource sectors and Social and health services)

RS 11.3.5 In consultation with Parks Canada staff, conduct evidence syntheses and develop asset, program or service-specific climate change resilience assessments: studies to identify adaptation and resilience measures to address present and future climate hazards.

RS 11.3.6 Conduct Future-proofing studies: defining the future context in which the physical assets (e.g. building/ site/campus) will be situated during its lifespan and/or predicted end point (for example 25-40 years), or the expected lifespan of the rehabilitation's value. These studies should consider change drivers and trends like climate change adaptation, emerging technologies related to Internet Protocol networks, Artificial Intelligence, autonomous vehicles and other transportation changes, and the shifting nature of work and workspaces themselves.

RS 11.3.7 Risk Management studies: studies that help an organisation adapt to risks.

RS 11.3.8 Provide specialist advice and review of draft adaptation planning summaries following meetings/workshops in 9.1.3.2, to support the integration of climate change adaptation and climate change mitigation co-benefits, in collaboration with meeting/workshop participants and Parks Canada staff.