

## APPENDIX A – PROJECT BRIEF / TERMS OF REFERENCE

### 1. PROJECT BRIEF - Architectural & Engineering Services – RCMP Detachment – Barrhead, Alberta

#### 1.1. INTRODUCTION

The RCMP requires the services of Architectural and Engineering professionals to provide services for the design and contract administration, delivery and set-up of a detachment facility to meet identified program requirements in Barrhead, Alberta.

There is an operational requirement for a new RCMP detachment facility to be constructed in the community of Barrhead, Alberta. Barrhead is approximately 120 kilometers Northwest of Edmonton. The RCMP will use the design delivered for this project as a prototype design which will be used and customized for other projects.

The anticipated size of the facility is approximately 778 m<sup>2</sup> of finished space. This new facility will replace existing policing facilities that no longer meet the operational requirements for the provision of policing services to the communities of which the detachment serves.

New Government of Canada requirements include provisions for net zero carbon compliance buildings. **This building will be required to be built to Net Zero Carbon or Net-Zero Carbon Ready construction.**

#### 1.2. CONSTRAINTS AND CHALLENGES

- 1.2.1 Security clearances will be required by personnel working on this project.
- 1.2.1. Budget control and management is of significant importance in the completion of this project. Utilization of innovative design to reduce the overall cost of the project is critical and design options provided by the consultant team will be challenged to ensure economies and efficiencies are identified.
- 1.2.2. These facilities will need to be designed and developed to be sustainable demonstrating that the detachment will be capable of being a “net zero” carbon calculation design.

#### 1.3. PROJECT INFORMATION

- 1.3.1. Project Title: Architectural and Engineering Design Services – New Government of Canada Building, Barrhead, AB.
- 1.3.2. Project Location: Barrhead, Alberta
- 1.3.3. Scope: Design to meet the requirements of the functional programs, applicable codes, and contract administration for the design of RCMP detachment facilities.
- 1.3.4. Work to include:
  - 1.3.4.1. New design options to meet functional requirements and net zero requirements
  - 1.3.4.2. Completion of Tender Documents.
  - 1.3.4.3. Construction Contract Administration
  - 1.3.4.4. Post Construction – Warranty Services

#### 1.4. PROJECT TENDERING APPROACH

1.4.1. The tendering of the Architectural and Engineering Design Services requirement will be an open tender on the Government Electronic Tendering System (GETS), administered by the Public Services and Procurement Canada (PSPC).

#### 1.5. PROJECT BUDGET

1.5.1. The estimated preliminary construction cost estimate (Class D) for the Barrhead Detachment is \$7,000,000.00. This value includes all costs, base building, fit-up, etc. Greening Initiatives are included with this value.

1.5.2. Cost estimate does not include administrative costs, building permits, consultant fees or applicable taxes.

1.5.3. The project design must take into consideration the project budget and functional requirements throughout the development of the project to ensure that both Scope and Cost objectives are met.

1.5.4. The project budget is based on the above identified preliminary estimate. Estimates for construction and BCC will be developed and updated by the Consultant at identified stages in project development and will be reviewed by the RCMP for compliance with the overall project budget. Proceeding to subsequent stages will be subject to RCMP approval of estimate variances.

#### 1.6. PROJECT DELIVERY APPROACH

1.6.1. The construction tender activity will use a traditional, “design-bid-build” approach. The Consultant engaged through this RFP will provide the services required under the general direction of the RCMP Departmental Representative and will coordinate all design, and construction contract administration activities based on formal direction from the RCMP Departmental representative as delegated.

1.6.2. All work will be managed by the RCMP Departmental Representative.

#### 1.7. PROJECT SCHEDULE

1.7.1. Schedule:

<b>Barrhead Detachment Schedule:</b>	
<b>Stage</b>	<b>Date</b>
Award Consultant Contract	2022/08/01
Present Concept Design Options	2022/09/01
Finalize Options for Floor Plan	2022/10/01
Schematic Design	2023/01/01
Design Development	2023/03/01
33% Contract Documents	2023/05/01
66% Contract Documents	2023/08/01
99% Contract Documents	2023/09/01
Final Tender Documents	2024/01/01
Issued for Construction Documents	2024/04/01

Substantial Construction Completion	2024/03/30
Final Construction Completion	2026/04/30
Furniture Installation Completion	2026/05/01
Building Occupancy	2026/06/30
Warranty Concludes	2027/03/31

## 1.8. EXISTING DOCUMENTATION

- 1.8.1. Copies of all pertinent documentation will be made available to the Consultant.
- 1.8.2. The successful Consultant will be provided with the following background documents:
  - 1.8.2.1. Exemplary drawings of recently completed detachment projects in Alberta;
  - 1.8.2.2. Legal survey information of the existing site;
  - 1.8.2.3. Phase I and II Environmental Assessment of land;
  - 1.8.2.4. Geotechnical report from land acquisition.
- 1.8.3. Disclaimer:
  - 1.8.3.1. Reference information will be available in the language it is written.
  - 1.8.3.2. The documentation may be unreliable and is offered “as is” for use by the Consultant.

## 2. PROJECT OBJECTIVES

### 2.1. Objective One: Functional Performance

- 2.1.1. Provide a design that will allow for varying functional requirements and meet the specific spatial values for the new facility in the community of Barrhead, Alberta.
- 2.1.2. Achieve:
  - 2.1.2.1. A design that provides functional, responsive and efficient workspace in keeping with the functional programs, the RCMP and Treasury Board standards.
  - 2.1.2.2. Healthy working environments that fully support optimal work productivity.
  - 2.1.2.3. Easy to use and adaptable systems and technologies to support requirements with capacity for growth and change.
  - 2.1.2.4. Effective and efficient office furniture layout plan, utilizing suppliers from the Government of Canada’s National Master Standing Offer Agreement, fully coordinated with the Mechanical and Electrical disciplines.
  - 2.1.2.5. Effective and continuous physical security for the occupants in the conduct of their daily business.
  - 2.1.2.6. A facility that is designed in a manner that will allow for simple future expansion to the administration and detention portions of the facility.
  - 2.1.2.7. Integration of RCMP systems for Security and Information Services with project requirements.

### 2.2. Objective Two: Design Quality and Character

- 2.2.1. Provide facilities that will effectively and appropriately serve the RCMP and its operations for an expected life span of 30 years before major refit.
- 2.2.2. Achieve:

- 2.2.2.1. Design excellence, use of quality materials and precise execution respecting the geography, geology and climate where these facilities will be located.
- 2.2.2.2. Quality and construction methods shall be robust and should reflect the expectations defined in CSA Standard S478-95, "Guidelines on Durability in Buildings (Design)." The final product shall be designed to have a medium life of 25 to 49 years per the standard.
- 2.2.2.3. A design that will reflect the importance and the nature of the functions it serves and fits within the surrounding environment.
- 2.2.2.4. A fully integrated design.

### **2.3. Objective Three: Building Performance**

- 2.3.1. Provide a building and building systems that will enable long-term efficient and cost effective life cycle performance.
- 2.3.2. Achieve:
  - 2.3.2.1. A building that embodies contemporary sustainable design and application principles and is implemented in an environmentally responsible manner.
  - 2.3.2.2. Healthy and safe environments that meet or exceed all codes for fire, health, and life safety.
  - 2.3.2.3. A building that fully integrates all components and systems (architectural, structural, mechanical, electrical, civil, landscape, IT, security, life safety, and furniture design).
  - 2.3.2.4. Fabrics and systems that are of a high quality; designed in response to sound building science, life cycle cost effectiveness, ease of maintenance with accessible parts for servicing and constructed with the best workmanship available.
  - 2.3.2.5. Mechanical systems that can be accessed and easily maintained and repaired and/or replaced in the building life cycle, as required.
  - 2.3.2.6. Apply active and passive sustainable strategies to achieve a carbon neutral building leveraging the principles laid out in industry recognized building certification standards, like Passive House, LEED, NECB, etc.
  - 2.3.2.7. Compliance with the NEBC 2017. Design shall utilize the Energy performance compliance path as defined in the 2017 NECB and document compliance. Building to achieve 25% better building performance over NECB 2017 as a minimum.
  - 2.3.2.8. Design and build to net-zero carbon unless a Green House Gas (GHG) Life Cycle Costing Analysis (LCCA) indicates net-zero carbon-ready construction. A GHG LCCA is conducted using the methodology identified by Treasury Board of Canada Secretariat (TBS).

### **2.4. Objective Four: Project Delivery**

- 2.4.1. Deliver the project utilizing best practices in support of the RCMP's needs, respecting the approved scope, expected quality, budget and schedule.
- 2.4.2. Achieve:
  - 2.4.2.1. A cohesive functional partnership and open communication between all members of the project delivery team and stakeholders throughout all phases of the project life.
  - 2.4.2.2. An integrated and focused Consultant Team with an in-depth understanding and collective 'buy-in' of the project requirements, scope, budget and scheduling objectives, working

constructively to ensure a collaborative and cooperative team approach with knowledgeable and timely input and contribution by all project team members, including representatives from the RCMP.

- 2.4.2.3. Rigorous quality assurance reviews during the design and construction phases, conducted as an integral element of the design process for all major disciplines. As part of the design reviews include documented peer reviews.
- 2.4.2.4. A rigorous quality management plan in order to respond and correct, in a timely and effective manner, all issues as they occur.
- 2.4.2.5. Appointment of a competent and qualified Project Architect to provide enduring vision and guidance for the entire project duration, to be responsible for the production and delivery of all documents, review of construction for conformity to intent, and to ensure that there is continuity of key personnel working as an integrated dedicated team.
- 2.4.2.6. Professional conduct in all phases of the project, employing best practices for budget, schedule, quality and scope management.
- 2.4.2.7. A continuous risk identification and management program employing effective methodologies to avoid unexpected project impacts, and to ensure construction claims avoidance.
- 2.4.2.8. Continuous and comprehensive documentation of the project at all stages of the project implementation, for Records of Decisions, project follow up and development of Lessons Learned.

### **3. SCOPE OF WORK**

#### **3.1. Overview**

- 3.1.1. Provide comprehensive professional services for all phases of project development including, project analysis and schematic design, design development, tender document production, assistance during tendering, construction administration, post construction services, commissioning and warranty services as described in more detail in the following sections.
- 3.1.2. Ensure integration of RCMP user systems and requirements during all phases of the project.
- 3.1.3. Maintain consistency and continuity of the multidisciplinary team throughout all project phases.

#### **3.2. Scope of Work by Project Phase**

##### **3.2.1. Phase 1 – Project Analysis and Schematic Design**

- 3.2.1.1. Review the existing site, the current operational requirements, summarize the project mandate, and develop a functional program, project budget, key parameters, key constraints, and project objectives in a Project Design Report.
- 3.2.1.2. Review and summarize functional requirements, including occupancy and roles, facility requirements and room data sheets.
- 3.2.1.3. Review and summarize options and approach for design, integration and procurement process for acquisition and installation of all RCMP Building Components and Connectivity (BCC) elements.
- 3.2.1.4. Review the site to provide options for the RCMP consideration for placement of the new detachment. The review must consider (but not be limited to) parking, vehicular circulation, access, relocation/demolition of existing buildings along with a recommended option.

- 3.2.1.5. Provide 3 conceptual designs for consideration by the RCMP for the provision of a new facility, ensuring optimal use of the site, space utilization, efficiency, integration of security requirements, and compliance with Authorities Having Jurisdiction.
- 3.2.1.6. Summarize options in a Project Design Brief complete with functional program, key features, opportunities, constraints, risks and estimated construction budgets.
- 3.2.1.7. Present Schematic Design options and Design Brief for review and approval by RCMP.
- 3.2.1.8. During the project analysis stage, the Consultant must evaluate and propose options for site development. This will include (but is not limited to) a review of site services, grading, environmental impacts, cost comparisons between options, etc.
- 3.2.1.9. Develop energy modelling and a greenhouse gas life cycle cost analyses that will analyze project options, balancing GHG emissions and costs over a period of 40 years.
- 3.2.1.10. Develop final Schematic Design based on RCMP selected concept and comments then submit for sign off.

### **3.2.2. Phase 2 – Design Development**

- 3.2.2.1. Develop the preferred design based on the approved schematic from Phase 1.
- 3.2.2.2. Update Project brief drawings, outline specifications, and supporting information sufficient to convey full conceptual understanding of all building elements and systems for all disciplines. Summarize options considered for each major building system along with evaluation to support recommended concepts.
- 3.2.2.3. Update project budget, schedule, and risk plan based on outcome of design development phase. Submit updated project brief and supporting documentation for RCMP review and approval.
- 3.2.2.4. Finalize Design Development phase based on RCMP approval and comments and submit for sign off.

### **3.2.3. Phase 3 – Construction Documents**

- 3.2.3.1. Development of construction documents to be conducted at 33%, 66%, 99% and tender ready stages with full updates to the Project Brief, drawing and specification submissions, presentations, cost estimates, schedules and risk plan at each stage.
- 3.2.3.2. Prepare and provide documentation for RCMP reviews and approvals at 33%, 66%, 99% and tender ready stages of construction document production.
- 3.2.3.3. After each stage of RCMP review, confirm how comments have been or will be addressed in the next stage, or provide alternate solutions to address expressed concerns for RCMP signoff.
- 3.2.3.4. Proceeding to tender with planned addenda or incomplete documentation will not be acceptable.

### **3.2.4. Phase 4 – Tender Call and Bid Evaluation**

- 3.2.4.1. Coordinate with the Departmental Representative in the development of tender package. Identify Cash Allowances, Unit Prices or other Bid information that may be included in the documents.
- 3.2.4.2. Attend on-site job showing for construction contract bidders, if applicable.

- 3.2.4.3. All questions from Bidders shall be directed to the Contract Authority.
- 3.2.4.4. Review all queries received during tender period and provide responses and or addenda as may be required for issue by RCMP.
- 3.2.4.5. Assists the Department Representative in evaluating the technical aspects of bids on an as required basis, including evaluation of tender price if it varies from pre-tender estimate by more than 10%.

### **3.2.5. Phase 5 – Construction Contract Administration**

- 3.2.5.1. Release of Issued for Construction (IFC) drawings.
- 3.2.5.2. Periodic construction reviews for conformance to contract documents and contract administration, including provision of bi-weekly site review reports, evaluation and certification of construction progress claims.
- 3.2.5.3. Review and respond to Requests for Information (RFI's), prepare draft Site Instructions, draft Change Directives, draft Contemplated Change Notices, and draft documentation for Change Orders for review and issue by the Contract Authority.
- 3.2.5.4. Review and evaluation of Contractors change proposals and claims
- 3.2.5.5. Review and evaluation of changes to construction schedule.
- 3.2.5.6. Updates to and monitoring of Project Risk Plan.
- 3.2.5.7. Attendance at all regularly scheduled project meetings (assuming minimum bi-weekly meetings) by representatives of each key Consultant discipline relevant for the phase of the work.
- 3.2.5.8. Attendance as required by key Sub-Consultants at special project meetings when required in response to specific technical issues as they arise.
- 3.2.5.9. Site reviews, documentation and evaluation of contract deficiencies.
- 3.2.5.10. Issue substantial completion document including any deficiencies that remain.

### **3.2.6. Phase 6 – Post Construction Services - RCMP Building Components and Connectivity (BCC) Installations**

- 3.2.6.1. Attendance at all regularly scheduled project meetings (assuming minimum bi-weekly meetings) by representatives of each key Consultant discipline relevant for the phase of the work.
- 3.2.6.2. Follow up on completion of base building deficiencies in support of Total Completion.
- 3.2.6.3. Technical review of all BCC systems and installation requirements as may be designed and specified by third parties for coordination and integration with base building systems.
- 3.2.6.4. Review and response to RFI's from base building contractor and from BCC contractors as they relate to base building systems, preparation of draft Site Instructions, draft Change Directives, draft Contemplated Change Notices, and draft documentation for Change Orders for review and issue by the Contract Authority to allow for integration and installation of RCMP BCC with base building contract requirements.

### **3.2.7. Phase 7 – Commissioning**

- 3.2.7.1. Prepare comprehensive commissioning plan for all Building systems in accordance with requirements identified in PSPC Commissioning Policy, and the PSPC Commissioning Manual. Reference; <http://www.tpsgc-pwgsc.gc.ca/biens-property/politiques-polices/misenservice->

[commissioning-eng.html](#).

- 3.2.7.2. Ensure commissioning requirements have been incorporated into appropriate sections of the project specifications prior to tender.
- 3.2.7.3. Monitor and document all commissioning activities as required.
- 3.2.7.4. Conduct final site reviews and provide certifications for Final Completion.

### **3.2.8. Phase 8 – Warranty**

- 3.2.8.1. Minimum of six weeks before the expiration of the warranty period conduct a site review and document all deficiencies or issues noted that are covered by project warranties.
- 3.2.8.2. Attend meetings as required with affected contractors, or subcontractors to review requirements for corrective action.
- 3.2.8.3. Review and document contractor follow up to warranty related corrective work.

## **3.3. Scope of Work by Discipline**

### **3.3.1. Architectural, Interior and Furniture Design**

- 3.3.1.1. All services required to design and construct sustainable strategy buildings to achieve carbon neutral (net zero). Refer to TBS Real Property GHG Life Cycle Cost Analysis Guidance.
- 3.3.1.2. Analysis of site options to assist site selection and placement of buildings.
- 3.3.1.3. Coordination of all professional services as required to deliver an integrated comprehensive design solution.
- 3.3.1.4. Comprehensive interior design services, including layouts, systems furniture coordination, finishes, acoustic treatment/systems design, and built- in furnishings as required.
- 3.3.1.5. Landscape design services to design all exterior elements as required to allow for location of new building and associated equipment in the context of existing site elements including roads, parking, pathways, site lighting, grounds, planting beds, trees, site drainage and fencing. All exterior signage and way finding to suit site standards.
- 3.3.1.6. Specific design and specification of locking hardware and physical security systems in compliance with RCMP standards.
- 3.3.1.7. Determine requirements for, coordination of all requirements, and production of required documentation in all forms related to submissions for approval to all authorities having jurisdiction, including but not limited to, RCMP internal stakeholders, and local and provincial authorities.
- 3.3.1.8. Coordinate and develop a building operation and maintenance manual (BOM). Based on the O&M manual, develop a building maintenance guide with instructions on how to operate, service, and maintain all building systems. BOM is to be written for use of detachment staff as service personnel are not readily available to provide facility maintenance.
- 3.3.1.9. Project Schedule and monitoring/updating of project schedule from baseline.
- 3.3.1.10. Provision of a Risk Management Plan, monitoring and updating of same.
- 3.3.1.11. Preparation of submissions to all authorities having jurisdiction and liaison as required to achieve approvals.

### **3.3.2. Civil Engineering**

- 3.3.2.1. All services required to design and construct required site utility services (including but not



limited to) power, fuel, water, storm and sanitary sewers, sustainability and utility infrastructure in support of business continuity requirements including emergency power systems.

- 3.3.2.2. All services required for complete site development modifications, including but not limited to, contaminated soils remediation, excavation and grading, drainage, and roads, parking areas, curbs, sidewalks and coordination with site security infrastructure, lighting and landscape elements.
- 3.3.2.3. All services required to design and construct, a sustainability strategy to achieve carbon neutral buildings.
- 3.3.2.4. Coordinate requirements for a topographical survey in support of building and site design. Break out pricing for the topographical report.
- 3.3.2.5. Coordinate and develop a building operation and maintenance manual (BOM). Based on the O&M manual, develop a building maintenance guide with instructions on how to operate, service, maintain all building systems. BOM is to be written for use of detachment staff as service personnel are not readily available to provide facility maintenance.

### **3.3.3. Structural Engineering**

- 3.3.3.1. Comprehensive structural engineering to design all applicable structural elements to current construction standards, as defined by applicable building codes.
- 3.3.3.2. Exterior elements in support of business continuity infrastructure components and site development;
- 3.3.3.3. All services required for the design and construction of a carbon neutral building in accordance with a sustainability strategy.

### **3.3.4. Mechanical Engineering**

- 3.3.4.1. Comprehensive mechanical engineering to design all applicable mechanical systems for the operation of a new facility including systems in support of business continuity.
- 3.3.4.2. All services required for the design and construction of a carbon neutral building in accordance with a sustainability strategy.
- 3.3.4.3. All documentation required from all applicable authorities having jurisdiction for provincial and federal environmental and technical approvals.
- 3.3.4.4. Preparation of submissions to all authorities having jurisdiction and liaison as required to achieve approvals.

### **3.3.5. Electrical Engineering**

- 3.3.5.1. Comprehensive electrical engineering to design all applicable electrical systems for the operation of a new facility including systems in support of business continuity.
- 3.3.5.2. Specialty electrical engineering related to design, coordination and installation of comprehensive audio-visual, information network, and security systems, as per requirements to evolve in detail during design development. Refer to Building Components and Connectivity Sections (BCC).
- 3.3.5.3. All services required for the design and construction of a carbon neutral building in accordance with a sustainability strategy.

- 3.3.5.4. Coordination with third party suppliers for integration of RCMP procured proprietary systems for audio-visual, information network, and security systems.
- 3.3.5.5. Specialty interior lighting design including general and task lighting to suit user requirements as per functional program.
- 3.3.5.6. Exterior site lighting.
- 3.3.5.7. Security systems infrastructure.
- 3.3.5.8. Specific site review as required to provide stamped record drawings of fuel storage and delivery system to confirm conformity with Environment Canada regulations.

### **3.3.6. Landscape Architecture**

- 3.3.6.1. All applicable elements for the development of the landscape of the site with specific attention placed in having the landscape blend into the surrounding environment, and meet RCMP Departmental Security Section requirements for plantings.

### **3.3.7. Building/Fire Code Engineering**

- 3.3.7.1. Comprehensive engineering to complete Building/ Fire Code analysis at all stages of the project. Design through construction completion.
- 3.3.7.2. Review reports consisting of the checking of building design drawings, specifications and shop drawings for conformity to the fire protection standards prescribed by the National Building Code, National Fire Code, Treasury Board Fire Protection Standards, or other applicable codes and standards at each phase of the project.

### **3.3.8. Commissioning and Integrated Systems Testing (IST) Specialist**

- 3.3.8.1. Preparation of comprehensive documentation to define requirements for complete building systems.
- 3.3.8.2. All commissioning and IST activities as required to design, check and verify that all building systems are functioning to the design specifications.
- 3.3.8.3. Review, verification and documentation of all contracted commissioning and IST activities.
- 3.3.8.4. All services required to design and construct sustainability strategy to achieve carbon neutral buildings.
- 3.3.8.5. Coordinate and develop a building operation and maintenance manual (BOM). Based on the O&M manual, develop a building maintenance guide with instructions on how to operate, service, maintain all building systems. BOM is to be written for use of detachment staff as service personnel are not readily available to provide facility maintenance.

### **3.3.9. Cost Specialist**

- 3.3.9.1. Preparation of comprehensive construction cost estimates at appropriate levels (D, C, B and A) for the stage of the project.
- 3.3.9.2. Preparation of estimates of Operating, maintenance and life cycle costs in conjunction with considerations of alternate building systems in the context of Value Engineering.
- 3.3.9.3. Provision for analysis of tender costs and recommendations of reasonableness.
- 3.3.9.4. Provision for analysis of submitted proposed change costs and schedule impacts and

recommendations of reasonableness.

3.3.9.5. Provision of Project schedule and monitoring/updating of project schedule from baseline.

3.3.9.6. Provision of a Risk Management plan, monitoring and updating of same.

### **3.3.10. Sustainability and Green Energy Consultancy**

3.3.10.1. All applicable components of a sustainable design to oversee the “net zero” calculation design as further outlined in Section 4.

### **3.3.11. Building Components and Connectivity**

3.3.11.1. This project includes implementation of the Building Components and Connectivity (BCC) program. The objective of the BCC program is to meet the operational requirements of the end-users to allow immediate occupancy of the space. Building connectivity means the physical, electronic and other systems that connect buildings and the workstations in them. BCC components and installations may be procured by RCMP or PSPC separately from the construction contract, and installed after substantial completion of the base building.

Planning for integration of all aspects of the BCC program is included in the project mandate.

3.3.11.2. BCC Components do not include office equipment related to administrative functions such as: computers, printers, fax machines, television sets, phone sets or radios.

3.3.11.3. BCC Connectivity includes the following building-specific list (but is not limited to):

3.3.11.3.1. Commercially available furniture

3.3.11.3.2. Specialty operational workstations, consoles and technical workstation furnishings

3.3.11.3.3. Commercially available furniture

3.3.11.3.4. Specialty operational workstations, consoles and technical workstation furnishings,

3.3.11.3.5. Purpose built or manufactured furniture and shelving/lockers,

3.3.11.3.6. LAN server room racks/cabinets and equipment,

3.3.11.3.7. Collaborative area seating,

3.3.11.3.8. Seating and task chairs,

3.3.11.3.9. Task Lighting,

3.3.11.3.10. Kitchenette Food Service Equipment (refrigerators, microwaves, dishwashers, etc.),

3.3.11.3.11. Police radio system tower and antennae/whips,

3.3.11.3.12. Specialty door hardware and locking systems,

3.3.11.3.13. Health and safety equipment,

3.3.11.3.14. Signage and wayfinding systems,

3.3.11.3.15. Cabling,

3.3.11.3.16. CATV,

3.3.11.3.17. IT Network,

3.3.11.3.18. Telephony,

3.3.11.3.19. Access Control,

3.3.11.3.20. Multimedia (Smartboards).

3.3.11.4. BCC Connectivity includes the following components or systems:

3.3.11.4.1. Infrastructure and conduit, tray, raceway systems and end device boxes, designed, supplied and installed under the general contract.

- 3.3.11.4.2. Specialty information system and secure network cabling and terminations (comprehensive for all systems)
- 3.3.11.4.3. Integrated Security System infrastructure.
- 3.3.11.4.4. Closed circuit video surveillance system infrastructure.
- 3.3.11.4.5. IT Network cabling and WIFI.
- 3.3.11.4.6. Telephony.
- 3.3.11.4.7. Entry systems.
- 3.3.11.4.8. Multimedia and AV systems.
- 3.3.11.4.9. Police Radio System Antennae/Whips.
- 3.3.11.4.10. Integrated Digital Building Management System, designed, supplied and installed under the general contract.
- 3.3.11.4.11. Integrated Fire Alarm Monitoring System, designed, supplied and installed under the general contract.
- 3.3.11.5. Scope of BCC for this Project is divided into functional groups as follows: Information Services and Network Systems, Security Systems, FFE (Furniture, Fixtures and Equipment), and Police Radio System.
- 3.3.11.6. Documentation of requirements and procurement methodologies for BCC components will be conducted simultaneously with development of the project and form part of the services to be provided by the Consultants.
- 3.3.11.7. Documentation of requirements and procurement methodologies for BCC components will be conducted simultaneously with development of the project and form part of the services to be provided by the Consultants.
- 3.3.11.8. The Consultant must provide procurement and system integration specifications and drawings for all BCC based upon base requirements and or specifications provided by the RCMP.
- 3.3.11.9. It will be the Consultant's responsibility to ensure that all BCC components are fully coordinated and integrated into the base building throughout design and construction. Including but not limited to HVAC systems, electrical systems, ducts, conduits, raceways, electrical boxes for outlets and device related installations, and specialty hardware.
- 3.3.11.10. The Consultant will be responsible to coordinate and integrate in the main project schedule, the schedule of deliverables for the BCC independent of procurement source such that the information for pathways and service infrastructure are received in a timely manner for the production of design / contract documents and to achieve timely project implementation during construction and commissioning.
- 3.3.11.11. The Consultant will be responsible to provide separate Class 'D', 'C', 'B', and 'A' estimates at each submission stage of the project corresponding with all stages of the base building design development for the full BCC program.
- 3.3.11.12. The Consultant will be responsible for all technical coordination issues related to BCC installations relative to the base building systems and infrastructure, in the period post Substantial Completion during the FFE and BCC component installations, tenant fit-up and commissioning stages of the project.
- 3.3.11.13. It will be the Consultant's responsibility to ensure full coordination to accommodate all BCC implementation with the building construction project and provide the related infrastructure and systems requirements.

## 4. SUSTAINABLE DEVELOPMENT

### 4.1. Overview

- 4.1.1. Sustainable Development objectives must be addressed throughout the evolution of the project. Sustainable Development is defined in broad terms as a strategy that routinely and consistently includes the consideration of the environmental, economic and societal impact of every decision made for the project. RCMP buildings will meet or exceed the Greening Government Strategy (GGS) commitments and its related guidance, as per the Federal Sustainable Development Act (FSDA), [subsection 2\(a\)](#) and [subsection 11\(1\)](#).
- 4.1.2. All new buildings must be constructed to be carbon neutral or net-zero carbon. The Centre for Greening Government defines a net-zero carbon building as a building that is climate resilient, highly energy efficient and fully powered from on-site and/or off-site clean energy sources. Disclose to the RCMP the embodied carbon of building envelope and structural materials, where relevant data exists. Structural materials include, but are not limited to: footings, foundations, parking structures, complete wall assemblies - from cladding to interior finishes, structural floors and ceilings, roof assemblies and stairs construction.
- 4.1.3. The following sustainable areas of focus include but are not limited to;
  - 4.1.3.1. Energy efficiency and conservation,
  - 4.1.3.2. Greenhouse gas emissions reduction,
  - 4.1.3.3. Clean energy sources, on-site and off-site generation.
  - 4.1.3.4. Clean energy sources, on-site and off-site generation,
  - 4.1.3.5. Water management and conservation,
  - 4.1.3.6. Pollution prevention,
  - 4.1.3.7. Product selection and resource conservation,
  - 4.1.3.8. Indoor environmental quality (thermal, air, and lighting quality),
  - 4.1.3.9. Site conservation (protection and preservation of valued natural site features),
  - 4.1.3.10. Measurement and Verification to provide an ongoing accountability of energy and building services consumption over time,
  - 4.1.3.11. Environmentally friendly maintenance procedures and products.
- 4.1.4. Energy modeling report will be required in accordance with NECB 2017 following the performance path demonstrating compliance with NECB 2017
- 4.1.5. For this project, a solid waste management program must be implemented for all construction phases.

### 4.2. Design Guidelines for Sustainable Development

- 4.2.1. The project's sustainable goals can be achieved by incorporating passive and active design strategies. The International Passive House Association (iPHA), Canada Green Building Council (CaGBC), the Green Building Initiative (GBI) and Natural Resources Canada (NRCAN) are internationally recognized organizations who publish standards and quantify the minimum requirements for green building certifications. These organizations certify Passive Houses, LEED buildings, and the Green Globes and ENERGY STAR certifications respectively and service as guidance to assist in the development of project specific sustainable design strategies.
- 4.2.2. The Consultant shall review and incorporate where applicable the principles of sustainable design as described in PSPC published documentation, available from PSPC at the following link: <http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/conn-know/enviro/pci-idp-eng.html>

- 4.2.3. The facility must be designed to exceed the requirements of the National Energy Code for Buildings (NECB) 2017 by a minimum of 25% as a baseline for comparison with Net-zero carbon options. Compliance must be demonstrated utilizing the performance path method as described in Part 8 of the NECB 2017, requiring the use of a computer simulated energy analysis model. Preliminary compliance of the design requirements must be demonstrated at the Design Development stage, and then updated to show continued compliance at both 66% and 99% Contract Document stages. The software utilized for modelling must be compliant with ANSI/ASHRAE 140.
- 4.2.4. Services to include a comprehensive study, review and recommendation for the implementation of systems to achieve a net zero carbon or net-zero carbon ready design. Further clarification provided in the next section - Building Performance.

#### **4.3. Building Performance**

- 4.3.1. Provide a building and building systems that will enable long-term efficient and cost effective life cycle performance
- 4.3.2. Achieve:
  - 4.3.2.1. A building that embodies sustainable design and application principles and is implemented in an environmentally responsible manner,
  - 4.3.2.2. Energy performance that exceeds the NECB 2017 requirements by 25% as baseline for comparison. Design shall utilize the Energy performance compliance path as defined in Part 8 of the NECB 2017 and document compliance.
  - 4.3.2.3. Healthy and safe environments that meet or exceed all applicable codes for construction, fire, health, and life safety.
  - 4.3.2.4. A building that fully integrates all components and systems (architectural, structural, mechanical, electrical, IT, multimedia, security, and furniture),
  - 4.3.2.5. Building materials and systems that are of a high quality; designed in response to sound building science, life cycle cost effectiveness, general ease of maintenance and constructed with the best workmanship possible,
  - 4.3.2.6. Mechanical systems that can be accessed and easily repaired and / or replaced in the building life cycle as required.
  - 4.3.2.7. Sustainable Development objectives throughout the evolution of the project to align with the Government of Canada's Greening Government Strategy.

#### **4.4. Net Zero Carbon Options Analysis**

- 4.4.1. Intent
  - 4.4.1.1. The Consultant must obtain written authorization from the Departmental Representative before proceeding with the Net Zero Carbon Options Analysis.
  - 4.4.1.2. The Consultant team will explore a minimum of four (4) distinctly different building system design concepts that each demonstrate compliance with achieving net zero carbon emissions, as it relates to the building option selected in the Schematic Design phase.
  - 4.4.1.3. Consultant team to determine the overall energy demand of the building (IE: heating source, electricity, etc.) and calculate the overall greenhouse gas emitted through the consumption of these sources. Net zero compliance must be demonstrated by analysis of utilizing alternative technologies or energy sources to offset the greenhouse gases emitted through the annual operation of the building. The analysis should be supported by an energy modelling analysis. Achievement of net zero carbon emissions to be evaluated over an entire calendar year of the building's operation and captured in the GHG LCCA.
  - 4.4.1.4. Based on results of the options analysis, the project stakeholders shall choose one option to be further developed (the GHG LCCA will assist decision makers by highlighting the balance of GHG emissions with cost).

- 4.4.1.5. Building specific data to be entered into RETScreen software and the RETScreen file is to be shared with the RCMP.

#### **4.5. Scope and Activities:**

- 4.5.1. Review chosen schematic building design, based on energy modelling and GHG LCCA analyses, as it relates to achieving net zero carbon emissions compliance.
- 4.5.2. Design baseline for comparison to be 25% greater than NECB 2017 requirements.
- 4.5.3. Prepare a minimum of four (4) Mechanical/Electrical Building System design options for the detachment. Each option to demonstrate impacts of utilizing sustainable technologies for both on-site and/or off-site energy generation to meet net zero carbon emissions compliance.
- 4.5.4. Purchasing of renewable energy credits to offset greenhouse gas emissions is not a permissible alternative.
- 4.5.5. Total carbon footprint of the manufacturing, transportation, installation, and end of life disposal of materials is not to be included in the analysis.
- 4.5.6. Analyze each option over 40-year cycle with regard to the following criteria:
  - 4.5.6.1. Building energy demand and costs,
  - 4.5.6.2. Capital cost of building systems (over baseline design),
  - 4.5.6.3. Annual utility costs,
  - 4.5.6.4. Total greenhouse gas emissions from consumption of utility grid sources (over one (1) calendar year),
  - 4.5.6.5. Total greenhouse gas emissions saved from proposed design options demonstrating net zero carbon compliance (over one (1) calendar year), and projected costs over a period of 40 years;
  - 4.5.6.6. Payback periods (for system over baseline design),
  - 4.5.6.7. Total system size (if on-site electrical generation option proposed).
- 4.5.7. Report to include executive summary, baseline information, description of each option presented, analysis of data above in graphical format, including GHG LCCA and energy analyses, and conclusion with a recommendation. Graphics, charts, images, etc. are to be included, as required, to support information presented within report.

#### **4.6. Deliverables**

- 4.6.1. Prepare and submit, for review and approval by the RCMP Departmental Representative, a Net Zero Carbon Analysis Report. Revise as required by the Departmental Representative. Resubmit for acceptance.
- 4.6.2. Climate Change Risk Assessment.

### **5. PROJECT TEAM**

- 5.1.** The Prime Consultant (proponent) and their personnel identified in the submission, including sub-consultants and specialists, comprise the integrated consultant design team (consultant team). The consultant team will be required to maintain its expertise for the duration of the project. The Consultant Team must include at minimum the following disciplines: Architecture (the Consultant), Civil Engineering, Mechanical Engineering, Electrical Engineering, Structural Engineering, Building/Fire Code Engineering, Cost Specialist, Integrated Systems Testing Specialist and Commissioning Specialist.
- 5.2.** The Prime Consultant (proponent) and their personnel identified in the submission, including sub-consultants and specialists, comprise the integrated consultant design team (consultant team). The consultant team will be required to maintain its expertise for the duration of the project. The Consultant Team must include at minimum the following disciplines: Architecture (the Consultant), Civil Engineering, Mechanical Engineering, Electrical Engineering, Structural Engineering, Building/Fire Code

Engineering, Cost Specialist and Commissioning Specialist.

- 5.3.** The Prime Consultant shall be responsible to co-ordinate and direct all Consultant Team activities.
- 5.4.** The consultant team shall be comprised of competent and qualified professionals having professional and technical expertise with extensive relevant experience, and shall be capable of providing the services identified in the Consultant Service Requirement section of this Project Brief.
- 5.5.** All members of the consultant team shall be eligible to work in the Province of Alberta.
- 5.6.** Members of the consultant team may have the necessary qualifications and expertise to provide services in more than one discipline or specialty
- 5.7.** Proponents are permitted to expand their consultant team to include additional disciplines at their own discretion.
- 5.8.** All members of the Consultant Team must be located within Canada.
- 5.9.** Expertise and relevant experience requirements for this project are as follows:
  - 5.9.1. Administrative
    - 5.9.1.1. Project Management
    - 5.9.1.2. Scheduling
    - 5.9.1.3. Risk Management
    - 5.9.1.4. Cost consulting
  - 5.9.2. Regulatory Analysis, Planning, Design, and Development
    - 5.9.2.1. Building Code
    - 5.9.2.2. Municipal Zoning
    - 5.9.2.3. Occupational Health and Safety
    - 5.9.2.4. Fire and Life Safety
  - 5.9.3. Program Analysis, Planning, Design, and Development
    - 5.9.3.1. Enriched front end planning
    - 5.9.3.2. Functional programming
  - 5.9.4. Site Analysis, Planning, Design, and Development
    - 5.9.4.1. Site Planning
    - 5.9.4.2. Landscape Architecture
    - 5.9.4.3. Civil Engineering / Municipal Engineering (infrastructure)
  - 5.9.5. Architecture and Specialties:
    - 5.9.5.1. General Architecture
    - 5.9.5.2. Interior Design
    - 5.9.5.3. Furniture/Workstation specialist
    - 5.9.5.4. Sustainable Design – Net Zero Carbon design
    - 5.9.5.5. Integrated Systems Testing
    - 5.9.5.6. Codes and Life Safety
    - 5.9.5.7. Building Envelope
    - 5.9.5.8. Signage and Wayfinding
  - 5.9.6. Engineering
    - 5.9.6.1. Structural
    - 5.9.6.2. Seismic (if required)
    - 5.9.6.3. Mechanical
      - 5.9.6.3.1. Heating Ventilation Air Conditioning (HVAC)
      - 5.9.6.3.2. Plumbing
      - 5.9.6.3.3. Fire protection
      - 5.9.6.3.4. Indoor / Outdoor Air Quality Design and Control



- 5.9.6.3.5. Building Automation / Energy Management Control Systems
- 5.9.6.4. Electrical
  - 5.9.6.4.1. Power
  - 5.9.6.4.2. Lighting
  - 5.9.6.4.3. Information Technology and Communications
  - 5.9.6.4.4. Network Infrastructure Systems
- 5.9.6.5. Civil
- 5.9.6.6. Landscape Architecture
- 5.9.6.7. Commissioning and Integrated Systems Testing
- 5.9.7. Budget, Schedule and Risk Analysis, Planning, Design, and Development
  - 5.9.7.1. Cost planning
  - 5.9.7.2. Life cycle costing
  - 5.9.7.3. Estimating
  - 5.9.7.4. Change evaluation and cost control
  - 5.9.7.5. Time Planning, Scheduling, and schedule monitoring
  - 5.9.7.6. Risk Management

## **6. CONSULTANT SERVICE REQUIREMENTS**

### **6.1. CONSULTANT SERVICE REQUIREMENTS OVERVIEW**

- 6.1.1. The Consultant will be responsible for providing and coordinating the full professional Architectural and Engineering services required, from the Pre- Design Services Stage to the completion of the Post Construction Services Stage of the project. A summary of professional expertise and relevant specialty experience requirements for this project include, but are not limited to the following:
  - 6.1.1.1. Architectural and Engineering Services
  - 6.1.1.2. Budget and Schedule Management Services
- 6.1.2. Summary Scope of Services
  - 6.1.2.1. Pre- Design Services to include review of the programs and building site along with topographical survey and geo-technical information (preliminary report provided by RCMP) for the new detachment and provide a report of any issues which require redress.
  - 6.1.2.2. Prepare a final Design Development Report based on the approved Schematic Design, complete with outline specifications, including peer review reports and Class "C" estimate.
  - 6.1.2.3. Conduct peer reviews and submit reports throughout design. Submit summary documentation of Peer Reviews for review by the RCMP with each stage report.
  - 6.1.2.4. Prepare a fully coordinated set of construction drawings based on the approved Design Development Report, ready for tendering purposes and Class "A" cost estimate.
  - 6.1.2.5. Prepare specifications using National Master Specification (NMS) program including Division 1.
  - 6.1.2.6. Provide assistance during the tendering process including preparation of addenda and review tender results.
  - 6.1.2.7. Provide identified contract administration services.
  - 6.1.2.8. Recommend cost effective "Green Construction Materials", Methods and Practices that can be incorporated into the project without significant impact on the project budget.
  - 6.1.2.9. Identify Commissioning activities through standard Testing, Adjusting and Balancing protocols, monitor these processes and document results. There is not a requirement to

follow standardized commissioning protocols as per ASHRAE 202-2013 for this project. Refer to Section 5.6 Commissioning and Integrated Systems Testing for further requirements.

- 6.1.2.10. Prepare Maintenance Manuals including maintenance schedule, as-built drawings and specifications.
- 6.1.2.11. Provide post-construction and warranty services.

### 6.1.3. Design Quality

- 6.1.3.1. The Prime Consultant is responsible for monitoring and confirming quality throughout the life of the project. As part of the design quality assurance process the Prime Consultant will be responsible for coordinating peer reviews for each discipline. Peer reviews must be completed by all sub-disciplines/stakeholders and documented with follow up responses and included in each design submission.

## 6.2. CONSULTANT TEAM RESPONSIBILITIES

### 6.2.1. Prime Consultant

- 6.2.1.1. The Prime Consultant is completely responsible for providing and coordinating the work of all professional disciplines (Architectural and Engineering Consulting Services) required, from the Pre-Design Stage to the completion of the Post Construction Services Stage of the project.

### 6.2.2. Consultant Team

- 6.2.2.1. The Prime Consultant and their personnel including Sub-Consultants comprise the Consultant Design Team (Consultant Team).
- 6.2.2.2. The Consultant Team will be required to maintain its expertise for the duration of the project.

## 6.3. GENERAL SERVICE REQUIREMENTS

- 6.3.1. The Consultant team will be required to deliver integrated professional services, in accordance with the requirements set forth in this statement of work. The services will be administered in distinct stages, as follows:

- 6.3.1.1. Pre-Design Green Building Assessment and Project Requirements Confirmation
- 6.3.1.2. Schematic Design, Design Development and Green Building development analysis
- 6.3.1.3. Construction Documents
- 6.3.1.4. Tender Call, Bid Evaluation and Construction Contract Award
- 6.3.1.5. Construction and Contract Administration
- 6.3.1.6. Post Construction Services

- 6.3.2. The outline of deliverables and processes, as presented in this Consultant Service Requirements section, is intended as a general outline only. It is not exhaustive and does not preclude alternative or supplementary approaches as may be suggested by the Consultant for consideration by the RCMP Departmental Representative.

- 6.3.3. The Consultant shall perform the following services, in accordance with the terms and conditions of the Agreement and all the requirements of the statement of work:

- 6.3.3.1. Standard of Care
- 6.3.3.2. Budget and Schedule Management Services
- 6.3.3.3. Project Information, Decisions, Approaches & Approvals
- 6.3.3.4. Change Management Services
- 6.3.3.5. Code, By-Laws, Schedules, Licenses, Permit Reviews
- 6.3.3.6. Provision of Staff and Sub-Consultant Services
- 6.3.3.7. Commissioning including Integrated Systems Testing
  - 6.3.3.7.1. Identify Commissioning activities, which outline the systematic approach to testing, adjusting, balancing and verifying the systems' performance in accordance with the

design intent and related testing and verification forms, as well as their harmonious function one with the other, and all together.

#### **6.4. PROJECT ADMINISTRATION REQUIREMENTS**

##### 6.4.1. General

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

##### 6.4.2. RCMP Contract Authority

6.4.2.1. The RCMP Procurement Officer is the Contract Authority.

6.4.2.2. Changes to the Consultant agreement can only be authorized by the Contract Authority.

##### 6.4.3. RCMP Project Authority

6.4.3.1. The RCMP Senior Project Manager assigned to the project is the RCMP Project Authority and is also referred to as the Departmental Representative.

6.4.3.2. The RCMP Departmental Representative is directly concerned with the project and responsible for its progress on behalf of the RCMP.

6.4.3.3. The RCMP administers the project and exercises continuing control over the project during all phases of development.

6.4.3.4. Unless directed otherwise by RCMP Departmental Representative, the Consultant is responsible to obtain all Federal, Provincial and Municipal requirements and approvals necessary for the work. Applications and liaison with other GOC departments shall be coordinated through the RCMP Departmental Representative.

##### 6.4.4. Lines of Communication

6.4.4.1. Unless otherwise directed by RCMP Departmental Representative, the Consultant to conduct all project communication.

6.4.4.2. Formal contact between the Consultant and the RCMP Project Team, which includes RCMP stakeholders, shall be through the RCMP Departmental Representative.

6.4.4.3. Direct communication between Consultant Team members and the RCMP Project Team on routine matters is required to enable the discussion and resolution of technical issues. However, no communication shall alter the terms of the project scope, budget or schedule unless directed in writing by the RCMP Departmental Representative.

6.4.4.4. Where the tender is issued by the RCMP (as in a construction tender call), the RCMP is responsible for all correspondence with bidders and awarding of the contract. Consultant will be relied on to develop responses to bidder inquiries, but will not be in direct communication with bidders.

##### 6.4.5. Media Relations

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

6.4.5.2. The Consultant shall not use any project related materials, information, drawings, images, or photographs in any form for publicity or promotional purposes without the express written authorization of the RCMP Departmental Representative, which may be withheld at the sole discretion of the RCMP.

##### 6.4.6. General Deliverables

- 6.4.6.1. Where deliverables and submissions include summaries, reports, network diagrams, drawings, plans, specifications and finish schedules, Consultant to submit deliverables as follows:
- 6.4.6.1.1. Two (2) original 600mm x 900mm (24x36) hard copies (in English)
  - 6.4.6.1.2. One (1) copy in electronic format (in English) The electronic deliverables shall be provided using Microsoft applications.
  - 6.4.6.1.3. Alternative electronic format: the Consultant may submit all work in Adobe Acrobat \*.pdf format except for Network diagrams which must be submitted in their original electronic format.
  - 6.4.6.1.4. All drawings will be generated and distributed in the format using layering and file transfer protocols as described in the reference document available online.  
Reference: <http://www.tpsgc-pwgsc.gc.ca/biens-property/cdao-cadd/index-eng.html>
  - 6.4.6.1.5. Record drawings will be delivered in electronic (PDF) and hardcopy format.
  - 6.4.6.1.6. Construction documents issued for tender purposes must be in English.
  - 6.4.6.1.7. For all new buildings, building specific data to be entered into RETScreen software and the original RETScreen file to be shared with RCMP.

#### 6.4.7. Acceptance of Consultant Deliverables

- 6.4.7.1. While the RCMP acknowledges the Consultant's obligations to meet project requirements, the project delivery process entitles the RCMP to review the work. The RCMP reserves the right to reject undesirable or unsatisfactory work. The Consultant must obtain the RCMP Departmental Representative's acceptance during each of the project stages. RCMP acceptance does not absolve the Consultant from non-Code-compliant work.
- 6.4.7.2. Acceptance indicates 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.
- 6.4.7.3. The acceptance does not relieve the Consultant of professional responsibility for the work and compliance with the terms and conditions of the contract.
- 6.4.7.4. The RCMP acceptance does not prohibit rejection of work which is determined to be unsatisfactory at later stages of review. If progressive design development or time / cost / risk updates or technical investigation reveals that earlier acceptance should be withdrawn, the Consultant is responsible for re-designing work and resubmitting for acceptance at the Consultant's cost.
- 6.4.7.5. Acceptances by other agencies and levels of government must be obtained to supplement the RCMP acceptances. The Consultant shall assist the Departmental Representative in securing all such acceptances and adjust all documentation as required by such authorities when securing acceptance.

#### 6.4.8. Coordination with Sub-Consultants – Prime Consultant Responsibilities:

- 6.4.8.1. Throughout all phases of the project, assume responsibility for co-ordinating the work of any sub-consultants and specialists retained by the Consultant.
- 6.4.8.2. Ensure clear, accurate and ongoing communication of concept design, 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.
- 6.4.8.3. Coordinate input for the Departmental Representative's Risk Management Plan.
- 6.4.8.4. Coordinate the Quality Assurance process ensuring submissions of Sub-Consultants are complete and signed off by the designated senior reviewer of the Consultant.
- 6.4.8.5. Ensure sub-consultants provide adequate site inspection services and attend all required meetings.

#### 6.4.9. Project Response Time

- 6.4.9.1. It is a requirement of this project that the key personnel of the Consultant and Sub-Consultants or specialist firms are personally available to attend meetings or respond to inquiries within two working days of a request by the RCMP Departmental Representative.

#### 6.4.10. Meetings

- 6.4.10.1. The Consultant with the RCMP Departmental Representative shall arrange meetings generally every two weeks throughout the entire project development and implementation period for all members of the project team, including representatives from the RCMP, and Consultant Team.
- 6.4.10.2. During design and tendering phases:
  - 6.4.10.2.1. Consultant to attend the meetings
  - 6.4.10.2.2. Consultant to record the issues and decisions
  - 6.4.10.2.3. Consultant to prepare and distribute minutes within two (2) working days of the meeting
  - 6.4.10.2.4. Meetings can be held at the office of the RCMP Departmental Representative, the Consultant, or on MS Teams or a comparable platform.
- 6.4.10.3. During construction and implementation phases:
  - 6.4.10.3.1. Consultant to attend the meetings
  - 6.4.10.3.2. Consultant to prepare and distribute minutes within two (2) working days of the meeting
    - 6.4.10.3.2.1. Standing agenda items shall include:
      - 6.4.10.3.2.1.1. Project Planning Monitoring and Control
      - 6.4.10.3.2.1.2. Health and Safety
      - 6.4.10.3.2.1.3. Schedule
      - 6.4.10.3.2.1.4. Cost
      - 6.4.10.3.2.1.5. Risk
  - 6.4.10.3.3. On occasion, there may be urgent problem solving meetings. The Consultant shall be available to attend such meetings.

#### 6.4.11. Security Requirements

- 6.4.11.1. The Consultant Team will be required to seek security clearances for some or all personnel working on this project.
- 6.4.11.2. The Consultant Team including the Sub-consultants will be required to sign non-disclosure documents for RCMP protected material.
- 6.4.11.3. The Consultant shall distribute project documents such as drawings, specifications, reports, only to the design team members and only as required to perform the work.

#### 6.4.12. Authorities, Submissions, Reviews and Approval Processes

- 6.4.12.1. Federal Government Authority/Jurisdiction
  - 6.4.12.1.1. The following are Federal Government authorities and the areas which they have jurisdiction over the project. The list includes but is not limited to:
    - 6.4.12.1.1.1. Treasury Board of Canada
      - 6.4.12.1.1.1.1. Project approvals
    - 6.4.12.1.1.2. The Royal Canadian Mounted Police
      - 6.4.12.1.1.2.1. Tendering and procurement
      - 6.4.12.1.1.2.2. Contract approvals
      - 6.4.12.1.1.2.3. Contract Authority

- 6.4.12.1.1.2.4. Government of Canada Security Policy
  - 6.4.12.1.1.2.5. RCMP Departmental Authority
  - 6.4.12.1.1.2.6. Project Delivery
  - 6.4.12.1.1.2.7. Functional design requirements and standards
  - 6.4.12.1.1.2.8. Multimedia
  - 6.4.12.1.1.2.9. IT
  - 6.4.12.1.1.2.10. Security systems
  - 6.4.12.1.1.2.11. Life safety
  - 6.4.12.1.1.2.12. Personnel Security
  - 6.4.12.1.1.3. Environment Canada
    - 6.4.12.1.1.3.1. Canadian Environmental Assessment Act and;
    - 6.4.12.1.1.3.2. Canadian Environmental Protection Act
  - 6.4.12.1.1.4. National Research Council
    - 6.4.12.1.1.4.1. National Building Code
    - 6.4.12.1.1.4.2. Building codes and standards
- 6.4.12.2. Provincial and Municipal Authorities/Jurisdiction
- 6.4.12.2.1. The Federal government defers to provincial and municipal authorities for specific regulations, standards and inspections. In areas of conflict, the Federal authority prevails. The Provincial and Municipal Authorities and their respective areas of jurisdiction are as follows:
    - 6.4.12.2.1.1. Labour Board
      - 6.4.12.2.1.1.1. Employment Standards
      - 6.4.12.2.1.1.2. Construction Safety
      - 6.4.12.2.1.1.3. Designated Substance Management
      - 6.4.12.2.1.1.4. Workers Compensation
    - 6.4.12.2.1.2. Alberta Department of Environment
    - 6.4.12.2.1.3. Ministry of Environment & Climate Change Alberta
    - 6.4.12.2.1.4. Local Electrical and Gas Authority
      - 6.4.12.2.1.4.1. Electrical installations
      - 6.4.12.2.1.4.2. Natural Gas Installation
    - 6.4.12.2.1.5. Municipality/City Authority/Utility
      - 6.4.12.2.1.5.1. Zoning
      - 6.4.12.2.1.5.2. Site Plan Control, Development Plan
      - 6.4.12.2.1.5.3. Building, Electrical and Plumbing Permits and Inspection
      - 6.4.12.2.1.5.4. Fire Safety, Equipment and access for fire-fighting equipment
- 6.4.12.3. Presentations and Submissions
- 6.4.12.3.1. The RCMP Departmental Representative, as well as the Federal Authorities identified below will review work in progress on a continuing basis. Formal presentations are required for design and project approvals in accordance with the Project Delivery Phases outlined. Ad hoc presentations may be required to various committees and senior officials. Additional information on authorities requiring presentations and approval submissions detailed in the sections below.
  - 6.4.12.3.2. The frequencies of meetings indicated are estimates. They will be affected by the project phase, issues and requirements for decisions and approvals. The Consultant will be required to attend all meetings as needed and to make presentations to satisfy Authorities as identified.
  - 6.4.12.3.3. Municipal Building Permits and Other Permits:
    - 6.4.12.3.3.1. Co-ordinate submission requirements, schedule, number of submissions and turnaround time with the municipal authority.
    - 6.4.12.3.3.2. Development Permit
      - 6.4.12.3.3.2.1. While Municipal Development and Site Planning approval is not



- 6.4.12.5.2. Submission format:
  - 6.4.12.5.2.1. Reports, drawings and specifications, oral presentation, in English
- 6.4.12.5.3. Submission schedule – submissions are reviewed at:
  - 6.4.12.5.3.1. Pre-design/schematic (concept) phase, design phase, design development phase, construction documents phase, 33%, 66% and 99% complete
- 6.4.12.5.4. Expected review and approval turnaround time:
  - 6.4.12.5.4.1. 3 weeks (15 working days)
- 6.4.12.5.5. Number of submissions:
  - 6.4.12.5.5.1. One at each stage providing two (2) mandatory hard copies and three (3) electronic copies for each scheduled occurrence, plus any follow-up reviews.

#### 6.4.12.6. Public Presentation and Consultation

- 6.4.12.6.1. Any requirement for a public presentation would be requested and compensated as an additional service.

#### 6.4.13. INVOICING

- 6.4.13.1. The Consultant is permitted to invoice as per GC5 (R1230D) – Terms of Payment. Each invoice should be accompanied by an accounting of expenses to the date of the invoice. Include all receipts and invoices for disbursements.
- 6.4.13.2. All invoices shall be sent to the RCMP Departmental Representative for review and processing.
- 6.4.13.3. The Consultant's last invoice shall be marked "Final". This will result in closing of the contract and restriction of any further opportunity to invoice.

### 6.5. ANALYSIS OF PROJECT REQUIREMENTS

#### 6.5.1. Intent

- 6.5.1.1. This stage is intended for the Consultant to review and report on all aspects of the project requirements. The Consultant Team will review, gather and analyse all available program information, consult with the RCMP to develop a functional program and deliver a comprehensive Pre-Design Report. This approved deliverable will become the formal project work plan and will be utilized throughout the project to guide the delivery.

#### 6.5.2. Scope and Activities

- 6.5.2.1. Analyze the project requirements/program including any amendments
- 6.5.2.2. Analyze all available base building, site information and existing infrastructure.
- 6.5.2.3. Analyze BCC requirements including any amendments identified by the RCMP for Information Services, Security and Furniture/Equipment.
- 6.5.2.4. Analyze the building design security requirement and confirm design standards.
- 6.5.2.5. Review all other available existing material related to the project including requirements identified in the Project Brief.
- 6.5.2.6. Develop and document sustainability strategies to achieve carbon neutral buildings.
- 6.5.2.7. Identify all additional information that will be needed to deliver the project.
- 6.5.2.8. Undertake a budget, schedule and risk analysis and identify any conflicts that will need to be addressed with respect to scope, quality, schedule and cost.
- 6.5.2.9. Identify and verify all authorities having jurisdiction over the project and codes, regulations and standards which apply.
- 6.5.2.10. Develop an updated work breakdown structure that incorporates all of the above together with a detailed schedule including allowances for review, and approvals for each stage of the project including deliverable requirements for BCC, Information Services, and Security to be integrated into base building.



### 6.5.3. Deliverables

- 6.5.3.1. Prepare and submit an integrated Stage One Pre-Design Project Report, which includes a functional program for review and approval by the RCMP Departmental Representative. Resubmit for acceptance.
- 6.5.3.2. The Stage One Pre-Design Report will consolidate the Scope and Activities identified above and will be utilized as the benchmark project control document to monitor progress of the project. The report will be used as a basis for monthly reporting of progress and will require supplements and modifications to reflect changes in project parameters as may be identified and accepted throughout the project life cycle.
- 6.5.3.3. The structure used for the Stage One Pre-Design Project Report shall be used for the required project reports for all subsequent project stages. The content of the subsequent reports will vary according to the project stage.

### 6.5.4. Stage One Pre-Design Project Report Structure and Content

#### 6.5.4.1. Executive Summary

- 6.5.4.1.1. The executive summary is intended to provide an outline of the Stage One Pre-Design Project Report and outline any recommendations requiring the RCMP approval.

#### 6.5.4.2. Administrative

- 6.5.4.2.1. Aspects to be included (but not limited to) are:
  - 6.5.4.2.1.1. Summaries of project start-up meetings, workshops, partnering sessions.
  - 6.5.4.2.1.2. Quality management process for the Consultant Team.
  - 6.5.4.2.1.3. Confirmation that all necessary pre-design documentation required for this project is available and confirmation that the information is still current and up-to-date.
  - 6.5.4.2.1.4. Summary analysis of state of project readiness and viability of budget and schedule.

#### 6.5.4.3. Regulatory Analysis

- 6.5.4.3.1. Aspects to be included (but not limited to) are:
  - 6.5.4.3.1.1. Preliminary summary of regulatory and statutory requirements,
  - 6.5.4.3.1.2. Preliminary summary of authorities having jurisdiction,
  - 6.5.4.3.1.3. Preliminary summary of codes, regulations, and standards, and
  - 6.5.4.3.1.4. Summary analysis of regulatory limitations and project impacts.

#### 6.5.4.4. Program Analysis

- 6.5.4.4.1. Aspects to be included (but not limited to) are a review and analysis of:
  - 6.5.4.4.1.1. Updated Functional program including room data sheets
  - 6.5.4.4.1.2. Programmatic options.
  - 6.5.4.4.1.3. RCMP reports, studies, guidelines,
  - 6.5.4.4.1.4. Space data sheets,
  - 6.5.4.4.1.5. Work station/work settings report, office, common area and commercial space requirements,
  - 6.5.4.4.1.6. BCC requirements
  - 6.5.4.4.1.7. Summary analysis of Program requirements.

#### 6.5.4.5. Site Analysis

- 6.5.4.5.1. Aspects to be included (but not limited to) are a review and analysis of:
  - 6.5.4.5.1.1. Site features and restrictions (i.e. landscape features, topographical feature, climatic influences, setback requirements, easements, existing buildings, and / or structures.), parking capacity,
  - 6.5.4.5.1.2. Review of subsurface, geotechnical analysis of soils,

- 6.5.4.5.1.3. Municipal infrastructure, subsurface and above grade services, including capacities and limitations (i.e. storm water drainage, fire protection, domestic water, power, telecommunications,)
  - 6.5.4.5.1.4. Historical/archaeological features, previous uses
  - 6.5.4.5.1.5. Environmental features including sustainable design opportunities
  - 6.5.4.5.1.6. Summary analysis of Site conditions and project impact.
- 6.5.4.6. Building Analysis
- 6.5.4.6.1. Aspects to be included (but not limited to) are a review and analysis of:
    - 6.5.4.6.1.1. Substructure, including foundations and basement(s),
    - 6.5.4.6.1.2. Shell, including superstructure, exterior enclosure, roofing,
    - 6.5.4.6.1.3. Interiors, including building levels, interior construction,
    - 6.5.4.6.1.4. Services, including conveying (elevators, escalators), plumbing, HVAC, fire protection, electrical, telecommunications, building automation,
    - 6.5.4.6.1.5. Summary analysis of building considerations
- 6.5.4.7. Sustainable Development Strategies
- 6.5.4.7.1. Potential for environmental impacts and project impacts required by application of the Canadian Environmental Assessment (CEA) Act,
  - 6.5.4.7.2. Review and assessment of sustainable development design standards to be applied to the project to achieve Net Zero Carbon.
  - 6.5.4.7.3. Project approach to minimize environmental impacts consistent with the project objectives and economic constraints.
  - 6.5.4.7.4. Summary analysis of sustainable development strategies and approach.
- 6.5.4.8. Budget, Schedule, and Risk Analysis
- 6.5.4.8.1. Aspects to be included (but not limited to) are:
    - 6.5.4.8.1.1. Class 'D' estimate, for construction and BCC,
    - 6.5.4.8.1.2. Detailed work breakdown structure complete with sub-tasks,
    - 6.5.4.8.1.3. Analysis of risk implications and preliminary mitigation strategies, and
    - 6.5.4.8.1.4. Budget, Schedule, and Risk Analysis section of the pre-design report.
- 6.5.4.9. Rebuttal to internal/external Review of Pre-Design Project Report
- 6.5.4.9.1. Aspects to be included (but not limited to) are:
    - 6.5.4.9.1.1. Review and analysis of comments provided by the RCMP Project Team, and
    - 6.5.4.9.1.2. Summary and results of internal Peer Reviews.
    - 6.5.4.9.1.3. Written response to all comments provided by the above and a summary of project impacts.

## **6.6. SCHEMATIC DESIGN (DESIGN CONCEPT)**

### 6.6.1. Intent

- 6.6.1.1. The Consultant must obtain written authorization from the RCMP Departmental Representative before proceeding with Schematic Design.
- 6.6.1.2. The objective of the Schematic Design stage (or Design Concept) is to explore three distinctly different design concepts presented in sketch format (single line, produced to scale), fully integrated and supported by three or more distinctly different engineering solutions for the structure, mechanical, and electrical systems. Concepts to include physical or massing models, site slides and photographs, energy analysis and life cycle cost analysis, analytical data and calculations and sufficient narrative to allow comparison, analysis against project requirements, budget, and selection of a design direction for preparation of a final design concept.
- 6.6.1.3. The Schematic Design will be in sufficient detail to illustrate and communicate the project

characteristics. Provide a detailed review and analysis of the project requirements including all updates and amendments to ensure all requirements are fully integrated into the Schematic Design. Out of this process the Schematic Design option will be selected and authorization to proceed to the next phase.

6.6.1.4. Design Development will be based on the accepted Schematic Design.

6.6.1.5. The RCMP Departmental Representative, in concert with others, shall approve one option to be further developed. Note: Although the Consultant is required to identify a preferred option, the RCMP Departmental Representative may select another option.

#### 6.6.2. Scope and Activities:

6.6.2.1. Review, validate and update the details of the Functional Program requirements, including space analysis,

6.6.2.2. Coordinate services as required with the BCC project for Information Services, Security, Equipment and Furniture.

6.6.2.3. Develop sustainable design strategy,

6.6.2.4. Prepare a minimum of three (3) Schematic Design options.

6.6.2.5. Analyze each option with regard to the project goals including cost and schedule,

6.6.2.6. Undertake a budget, schedule and risk analysis and identify any conflicts that will need to be addressed with respect to scope, quality, schedule, cost, etc.

6.6.2.7. Present / submit Schematic Design options for review and approval to committees, review groups and authorities having jurisdiction.

6.6.2.8. Provide and /or coordinate all project requirements,

6.6.2.9. Coordinate all services with the RCMP Departmental Representative.

#### 6.6.3. Deliverables

6.6.3.1. Schematic (concept) design documents illustrate the functional relationships of the project elements as well as the project's scale and character, based on the final version of the functional program, the schedule, and the budget.

6.6.3.2. Prepare and submit, for review and approval by the RCMP Departmental Representative, an integrated Stage Two Project Report, and Schematic (Concept) Design. Revise as required by the Departmental Representative. Resubmit for acceptance.

6.6.3.3. The Schematic Design report (or Stage Two Report) will update the Stage One Report using the established report structure and format, consolidate the Scope and Activities identified above, and will continue to be utilized as the benchmark project control document to monitor progress of the project.

6.6.3.4. The Schematic (concept) Design report shall include written narrative, schematic drawings, graphics, models (traditional and/or computer generated)

6.6.3.5. Stage Two Report aspects to be included (but not limited to) are:

6.6.3.5.1. Updated Functional Program including base building requirements and room data sheets,

6.6.3.5.2. Statement of design principles for all disciplines,

6.6.3.5.3. Drawings, renderings and supporting 3D visualization illustrating the building interior / exterior, site,

6.6.3.5.4. Principles of BCC: Information Services, Security, Built-in Furniture and Equipment integration with base building,

6.6.3.5.5. Outline specifications for building systems and equipment performance,

6.6.3.5.6. Sustainable Development Strategies and Report including: Sustainable design opportunities, strategies, documentation of preliminary budgets (i.e. energy, water, waste),

6.6.3.5.7. Risk Assessment Report,

6.6.3.5.8. Report on any deviations that will affect cost or schedule and recommend corrective measures,

6.6.3.5.9. Description of implementation plan,

- 6.6.3.5.10. Updated detailed schedule, including deliverable requirements to be provided by the RCMP, Consultants for BCC: Information Services, Security, Furniture and Equipment to be integrated into base building,
- 6.6.3.5.11. Class 'C' Estimate,
- 6.6.3.5.12. Submit Project Log tracking all approved major decisions including those affecting changes to project scope, budget and schedule.

#### 6.6.4. Presentations

- 6.6.4.1. The Consultant Team shall present the schematic (Concept) Design to RCMP, as outlined in the Submissions, Review and Approval Process section (6.4.12).

#### 6.6.5. Details

##### 6.6.5.1. Architectural

- 6.6.5.1.1. Site plan relationships, landscape concept, building outlines, main accesses, roadways, vehicular and pedestrian traffic patterns.
- 6.6.5.1.2. Concept building plans showing relative disposition of main accommodation areas, circulation patterns, floors, horizontal and vertical space relationships, mechanical / electrical shafts.
- 6.6.5.1.3. Elevations and sections.
- 6.6.5.1.4. Typical wall details for building envelope.
- 6.6.5.1.5. Perspectives and / or 3D visualization.
- 6.6.5.1.6. Prepare and submit a report indicating how the design will meet the RCMP's operational requirements. Include the following subjects:
  - 6.6.5.1.6.1. Building areas and summary of all accommodation areas required.
  - 6.6.5.1.6.2. Identify, in square meters, the area and spatial requirements for all unit spaces identified in the Functional Program.
  - 6.6.5.1.6.3. Identify, in square meters, the area to be provided to maintenance personnel, including storage and for mechanical and electrical utility areas.
  - 6.6.5.1.6.4. Identify, in square meters, the area to be used for housekeeping (janitor closets, receptacle for vacuum, equipment supply and storage of maintenance materials).

##### 6.6.5.2. Civil

- 6.6.5.2.1. Verification of all site services information.
- 6.6.5.2.2. Site plans for the building showing existing and proposed site services and proposed building service connections.
- 6.6.5.2.3. Where contributing to an existing sewer, include preliminary analysis of impact on existing systems.
- 6.6.5.2.4. Concept plans for disbursement of storm water and site drainage systems.

##### 6.6.5.3. Structural / Seismic

- 6.6.5.3.1. General description of structures, including systems considered and benefits/disadvantages.
- 6.6.5.3.2. Preliminary design loads for all load cases.
- 6.6.5.3.3. Concept drawings of structural systems proposed, including typical floor plans, foundations, lateral systems and explanatory sketches.

##### 6.6.5.4. Mechanical

- 6.6.5.4.1. The concept submission shall include a description of the specific mechanical requirements and function for each area in the building. Incorporate in the submission a schedule of requirements confirming program requirements for all rooms and identify the mechanical building services to be provided.
- 6.6.5.4.2. Explain in the concept submission the manner in which the proposed mechanical systems correlate with users' requirements and in accordance with Sustainable

Development requirements.

- 6.6.5.4.3. Estimate operator/personnel needs required for mechanical equipment operation and maintenance.
  - 6.6.5.4.4. Identify location of entry point into the building of all mechanical services into the building.
  - 6.6.5.4.5. Confirm in square meters the area to be provided for mechanical rooms, and then identify what percentage of total building area this represents. Identify location of mechanical spaces in the building.
  - 6.6.5.4.6. Carry out preliminary energy analysis on system alternatives.
  - 6.6.5.4.7. Establish an energy budget for the building and compare it to energy consumption of other similar buildings. Total energy consumed in the building shall be expressed in kWh/sq. m.
- 6.6.5.5. Electrical
- 6.6.5.5.1. Provide an electrical design synopsis, describing the electrical work in sufficient detail for assessment and approval by the Departmental Representative. Include feasibility and economic studies of proposed systems complete with cost figures and loads and in accordance with Sustainable Development requirements.
  - 6.6.5.5.2. Site plan showing location of electrical and telecommunication service entrances.
  - 6.6.5.5.3. Normal and Emergency power distribution details including a diagram showing distribution up to distribution centers on each floor.
  - 6.6.5.5.4. Floor plans indicating locations and size of major electrical equipment and distribution centers.
  - 6.6.5.5.5. Floor plans indicating locations and size of telecommunications rooms, closets and major conduits.
  - 6.6.5.5.6. Typical lighting concepts for the interior and exterior environments including roads and parking areas.
  - 6.6.5.5.7. Typical ceiling or floor distribution systems for lighting, power, and telecommunications.
  - 6.6.5.5.8. Fire alarm system concept.
  - 6.6.5.5.9. BCC integration concepts.
- 6.6.5.6. Furniture / Equipment
- 6.6.5.6.1. Prepare a Furniture Recommendation Report based on the Functional Program and on parameters developed in conjunction with the RCMP. Report to include an examination of the following: procurement process and requirements, furniture type and layout, power requirements, and finishes. Become familiar with PSPC documents (IE: Chair Builder, Client Service Tools) and procurement process.
  - 6.6.5.6.2. Recommendations are to take into consideration the client's vision, functional requirements, proposed planning alternatives, space allocation and project budget.
  - 6.6.5.6.3. Prepare a Class 'C' cost estimate for the purchase of new furniture and equipment.
  - 6.6.5.6.4. Document scheduling requirements for the procurement of new furniture and equipment.

## **6.7. DESIGN DEVELOPMENT**

### **6.7.1. Intent**

- 6.7.1.1. This stage will further develop the design option selected for refinement at the Schematic Design stage. The Design Development documents consist of drawings and other documents to describe the scope, quality and cost of the project in sufficient detail to facilitate design approval, confirmation of code compliance, detailed planning of construction and project approval. This design will be used as the basis for preparation of construction documents.

#### 6.7.2. Scope and Activities:

- 6.7.2.1. Obtain written approval from RCMP Departmental Representative to proceed to Design Development Stage,
- 6.7.2.2. Review, validate and update details of program requirements and base building requirements with the RCMP,
- 6.7.2.3. Update Functional Program room data sheets as required,
- 6.7.2.4. Coordinate services as required for BCC with project for Information Services, Security, Furniture and Equipment,
- 6.7.2.5. Develop the sustainable design strategy; provide an overview of the status of measurement of the proposed building performance against the National Energy Code of Canada for buildings – most recent version. To satisfy Government of Canada Greening Initiative, develop “net zero” calculation design options analysis.
- 6.7.2.6. If any alterations are required, analyze the impact on all project components, and resubmit for approval if required,
- 6.7.2.7. Expand and clarify the Schematic Design intent for each design discipline,
- 6.7.2.8. Present/submit design and materials for review and approval to committees, review groups and authorities having jurisdiction as identified in section Project Administration, (Section 6.4)
- 6.7.2.9. Provide and/or coordinate all information for all project disciplines,
- 6.7.2.10. Analyze the constructability of the project and advise on the construction phase process(es) and duration(s).
- 6.7.2.11. Undertake an update to budget (Class C), schedule and risk analysis and identify any conflicts that will need to be addressed with respect to scope, quality, schedule, cost,
- 6.7.2.12. Coordinate services with the RCMP Departmental Representative,
- 6.7.2.13. Continue to review all applicable statutes, regulations, codes and by-laws in relation to the design of the project.
- 6.7.2.14. Confirm all aspects of the proposed Site design development.

#### 6.7.3. Deliverables

- 6.7.3.1. Prepare and submit an integrated Stage Three Project Report, Design Development, for review and acceptance by the Departmental Representative. Revise as required by the Departmental Representative. Resubmit for acceptance. The report will update the Stage Two Report, Schematic (Concept) Design, consolidate the Scope and Activities identified above, and will continue to be utilized as the benchmark project control document to monitor progress of the project.
- 6.7.3.2. The Stage Three Project Report shall include (but not be limited to) the following aspects, in written narrative, graphic, model (traditional and / or computer generated), and photographic format:
  - 6.7.3.2.1. Updated Functional Program including base building requirements and integration of BCC,
  - 6.7.3.2.2. Drawings and other media to communicate the entire site and building project for all disciplines showing all elements and services to detail necessary to make all design decisions and to substantially estimate the cost of the project,
  - 6.7.3.2.3. Provide a list and draft specification sections of all National Master Specification (NMS) sections to be used. Submit outline specifications for all systems and principle components and equipment. Provide in the outline specifications manufacturers’ literature about principal equipment and system components proposed for use in the project,
  - 6.7.3.2.4. Integration of BCC components illustrated by the plans and specifications for Furniture / Equipment, including all required layout and location plans, supporting infrastructure and connectivity requirements.
  - 6.7.3.2.5. Finishes and colour schemes, including Furniture / Equipment,

- 6.7.3.2.6. Site / building renderings, 3D visualization,
- 6.7.3.2.7. Sustainable Development Strategies and Report,
- 6.7.3.2.8. Updated sustainable design opportunities, strategies, updated budgets (i.e. energy, water, waste, sustainable procurement strategies),
- 6.7.3.2.9. Updated suitability strategies.
- 6.7.3.2.10. Natural Resources Canada energy simulation of the selected design option, including estimated annual energy cost as predicted by most the most current energy modeling software for the project location;
- 6.7.3.2.11. Update to Risk Assessment Report,
- 6.7.3.2.12. Fire Protection Engineers Report including requirements, strategies or interventions for protection of the building and its occupants,
- 6.7.3.2.13. Outline Commissioning Plan,
- 6.7.3.2.14. Outline Operation and Maintenance (O&M) Manual.
- 6.7.3.2.15. Description of contract packaging and implementation plan,
- 6.7.3.2.16. Preliminary construction schedule including long-term delivery items,
- 6.7.3.2.17. Updated detailed schedule including deliverable requirements to be provided for BCC: Information Services, Security, Furniture and Equipment, to be integrated into base building,
- 6.7.3.2.18. Updated Class 'C' Estimate including estimated annual cash flows,
- 6.7.3.2.19. Update life cycle cost analysis;
- 6.7.3.2.20. Update milestone project schedule, complete with summary of revisions and mitigation strategies (if significant change occurs).
- 6.7.3.2.21. Project Log tracking all approved major decisions including those affecting changes to project scope, budget and schedule,
- 6.7.3.2.22. Stage Three Project Report, Design Development consolidating all of the above.

#### 6.7.4. Presentations

- 6.7.4.1. The Consultant Team shall present the Design Development documents as outlined in the Submissions, Review and Approval Process (Section 6.4.12)

#### 6.7.5. Details

##### 6.7.5.1. Architectural

- 6.7.5.1.1. Site plan showing the building and infrastructure including pedestrian, vehicular, parking, fire routes, security, refuse storage, and delivery service access.
- 6.7.5.1.2. Floor plans of each floor showing all accommodation required, including all necessary circulation areas, stairs, elevators, and ancillary spaces anticipated for service use. Indicate building grids, modules, and key dimensions. Include roof plans.
- 6.7.5.1.3. Elevations of all exterior building facades showing all doors and windows accurately sized and projected from the floor plans and sections. Indicate clear floor and ceiling levels and any concealed roof levels.
- 6.7.5.1.4. Cross-sections through the building(s) to show floor levels, room heights, inner corridor elevations.
- 6.7.5.1.5. Detail Sections of walls or special design features requiring illustration and explanation of this stage, including fireproofing methods, physical, acoustical security.
- 6.7.5.1.6. Reflected ceiling plans.
- 6.7.5.1.7. Architectural materials, millwork, finishing details and/or samples to determine choice of materials and finishes.
- 6.7.5.1.8. Plans and typical details for Built-in Furniture.
- 6.7.5.1.9. Details of integration of Information Services, Security, Furniture / Equipment with Built-in Furniture.
- 6.7.5.1.10. Provide wall, floor and ceiling sections and details for all spaces requiring acoustic security. Include STC ratings for doors, transfer ducts and other assemblies to meet functional program and security requirements.

#### 6.7.5.2. Civil

- 6.7.5.2.1. Further refined site plans showing site services and building service connections referenced to proposed building outlines, site access roads, parking, fire routes and sidewalks, including existing and proposed grades and drainage improvements. Drawings shall contain locations of manholes (complete with invert elevations), valves, and fire hydrant locations. In addition, identify proposed pipe sizes and slopes, where applicable, and include pipe invert elevations at building foundation.
- 6.7.5.2.2. Identify, by means of Design Summary Sheets, pipe capacity and estimated flows for storm and sanitary sewers. Where contributing to an existing sewer, include analysis of impact on existing systems.
- 6.7.5.2.3. Provide Hydraulic Analysis of any relevant alterations to existing water distribution system in the vicinity of the proposed building to confirm anticipated maximum available fire flow. Calculate and compare site flows to building site fire flow.
- 6.7.5.2.4. Provide typical trench and related details, including profiles of below grade services.
- 6.7.5.2.5. Indicate locations of and provide details of independent utility infrastructure and services such as underground tanks, vaults, wells and utility service pads.

#### 6.7.5.3. Structural / Seismic

- 6.7.5.3.1. Provide detailed description of structural design concept to resist seismic loads and to address requirements for post disaster construction.
- 6.7.5.3.2. Provide detailed description of structural design concept to resist progressive collapse caused by natural or manmade disasters.
- 6.7.5.3.3. Structural drawings indicating modifications or new structural systems, structural materials, cladding details, fireproofing methods and other significant or unusual details.
- 6.7.5.3.4. Drawings shall indicate all design loads, e.g. dead and live loads on all plans with atypical loads marked.
- 6.7.5.3.5. Indicate integration of Information Services and Security pathways and relationships with building structure.

#### 6.7.5.4. Mechanical

- 6.7.5.4.1. For the selected option develop a minimum of:
  - 6.7.5.4.1.1. A baseline system and Two (2) HVAC systems options. (i.e. 3 total)
  - 6.7.5.4.1.2. Develop additional sub-systems options, which were not developed in the schematic/concept stage. This may include types of boilers, chillers, heat pumps, fans, cooling towers, humidification, and controls, or other net-zero types of mechanical options.
  - 6.7.5.4.1.3. Analyze and compare options using methods including internal Peer Review and select a recommended option.
  - 6.7.5.4.1.4. Develop the design in detail with the recommended option.
- 6.7.5.4.2. Site Plan showing service entrances for, domestic water supply, sanitary and storm drains and connections to utility services, including all key invert elevations.
- 6.7.5.4.3. Drawings showing preliminary sizing of ventilation, cooling and heating systems showing locations, and all major equipment layouts in mechanical rooms.
- 6.7.5.4.4. Drawings of plumbing system, showing routing and sizing of major lines and location of pumping and other equipment where required.
- 6.7.5.4.5. Drawings of the fire protection systems showing major components.
- 6.7.5.4.6. Provide written description of design concepts and all specific system components to provide service redundancy in support of business continuity.
- 6.7.5.4.7. Update the energy analysis and energy budget.
- 6.7.5.4.8. Provide information of all internal and external energy loads in sufficient detail to determine the compatibility of the proposal with existing services, approved concept



and energy budget.

- 6.7.5.4.9. Analysis of selected equipment and plant with schematics and calculations sufficient to justify the economy of the selected systems.
- 6.7.5.4.10. Describe the mechanical systems to be provided and the components of each system including mechanical ancillary devices needed to support emergency power systems.
- 6.7.5.4.11. Describe the building systems control architecture. Provide preliminary Energy Management Control Services (EMCS) network architecture, mechanical control schematics, and sequence of operation of each building system.
- 6.7.5.4.12. Explain what acoustical and sound control measures are to be included in the design.

#### 6.7.5.5. Electrical

- 6.7.5.5.1. For the selected option update the electrical design synopsis. Provide data on the total connected load, the maximum demand and diversity factors, and the sizing of the emergency load.
- 6.7.5.5.2. Identify Utility requirements and indicate short circuit information at point of entry.
- 6.7.5.5.3. Elaborate on proposed emergency power scheme and provide preliminary installation details for emergency generator installation(s).
- 6.7.5.5.4. Indicate metering locations on distribution diagram.
- 6.7.5.5.5. Provide typical lighting, power and telecommunication system details for all workspaces.
- 6.7.5.5.6. Include lighting design and control schemes for typical lighting arrangements.
- 6.7.5.5.7. Elaborate on exterior lighting scheme. Provide typical fixture concepts.
- 6.7.5.5.8. Provide a fire alarm riser diagram.
- 6.7.5.5.9. Submit detailed BCC integration concepts.
- 6.7.5.5.10. Indicate security system major conduit requirements on floor plans.
- 6.7.5.5.11. Provide typical security system details (conduit and boxes) that will be included on construction drawings.

#### 6.7.5.6. Commissioning

- 6.7.5.6.1. To be prepared by the Architect and Mechanical / Electrical Sub-Consultants, in coordination with the Commissioning Sub-Consultant:
- 6.7.5.6.2. Define requirements for project records and how these records will be managed, updated, and submitted at the end of the project.
- 6.7.5.6.3. Provide an outline of the proposed Commissioning procedures, protocols and schedule requirements.
- 6.7.5.6.4. Prepare a list of Spare or specialty equipment, extra material and redundancies needed to operate and maintain this facility over its life expectancy.
- 6.7.5.6.5. Assessment of:
  - 6.7.5.6.5.1. Staffing & skill requirements to operate and maintain the facility.
  - 6.7.5.6.5.2. The need for service contracts, i.e. elevators, water treatment, controls emergency generators, fire alarm.
- 6.7.5.6.6. Prepare a preliminary O&M budget (Class C).
- 6.7.5.6.7. The O&M budget will contain a detailed breakdown of various items with the assessment of the systems selection. For example, provide an order of magnitude for electrical, mechanical, or specialty equipment and systems maintenance and / or service contract costs.

#### 6.7.5.7. Furniture / Equipment

- 6.7.5.7.1. Provide Furniture / Equipment plans with optional layouts as developed with the BCC suppliers for operational systems consoles and furniture.
- 6.7.5.7.2. Prepare a comprehensive list for all rooms and building exterior.
- 6.7.5.7.3. Preliminary Furniture Plans:
  - 6.7.5.7.3.1. The Consultant shall prepare preliminary furniture and equipment plans that

- include but are not limited to a generic furniture footprint, and, or specific furniture/equipment (including AV) systems.
- 6.7.5.7.3.2. The Consultant must coordinate with the RCMP Departmental Representative for the definition of the furniture and equipment system(s) to be used or procured for the project in order to coordinate with the appropriate furniture suppliers the systems and component counts for the project.
  - 6.7.5.7.3.3. Collaborate with selected suppliers as identified by the Departmental Representative to determine impact on base building and fit-up requirements of up to a maximum of three (3) options for furniture and equipment systems (each design to be from different manufacturers) and make design adjustments as required to accommodate selected systems.
  - 6.7.5.7.3.4. Illustrate preliminary layout of all furniture, furnishings and equipment pertaining to open and enclosed workstations / work settings, support space and special purpose space, including variations based on selection of alternate furniture and equipment systems.
  - 6.7.5.7.3.5. Illustrate preliminary location and identification of all major equipment (including but not limited to) network equipment and video displays.
  - 6.7.5.7.3.6. Illustrate sight lines for all workstations to multimedia displays in operational, training and collaborative spaces.
  - 6.7.5.7.3.7. Identify and illustrate preliminary electrical, telephone, data, voice and video infrastructure in support of selected systems layout / locations.

## **6.8. CONSTRUCTION DOCUMENT SERVICES**

### **6.8.1. Intent**

- 6.8.1.1. The Consultant must obtain written authorization from the Departmental Representative before proceeding with Construction Documents.
- 6.8.1.2. The objective of the Construction Document phase is to translate the design development documents into construction drawings and specifications to guide and direct the Contractor and Sub-Contractors in carrying out their work on the project.
- 6.8.1.3. Prepare drawings and specifications setting forth in detail the requirements for the construction and final cost estimate for each tender package for the project.
- 6.8.1.4. Construction documents shall be prepared in four phases as follows with progressive submissions for review and approval by the RCMP.
- 6.8.1.5. 33% indicates technical 33% completeness of all Construction documents,
- 6.8.1.6. 66% indicates substantial technical development of the project - well advanced architectural and engineering plans, elevations, sections, details, schedules and specifications,
- 6.8.1.7. 99% is the submission of complete Construction Documents ready for tender call,
- 6.8.1.8. Final Submission (Issued For Tender (IFT)) incorporates all revisions required in the 99% version and is intended to provide the Departmental Representative with complete Construction documents ready for tender call.
- 6.8.1.9. The Final Submission shall be in English.

### **6.8.2. General**

- 6.8.2.1. Activities are similar at all stages; completeness of the project development shall reflect the stage of a submission.

### **6.8.3. Scope and Activities**

- 6.8.3.1. Obtain Departmental Representative's approval for Construction Documents submissions (33%, 66%, 99% and final),
- 6.8.3.2. Confirm format of drawings and specifications,
- 6.8.3.3. Provide full coordination of all disciplines between all tender packages,
- 6.8.3.4. Clarify special procedures,

- 6.8.3.5. Submit drawings and specifications at the required stages (33%, 66%, 99% and final),
- 6.8.3.6. Include base building Information Services and Security pathways and service infrastructure at each stage,
- 6.8.3.7. Provide written response to each disciplines peer review comments and incorporate them into Construction Documents where required,
- 6.8.3.8. Advise as to the progress of cost estimates and submit updated cost estimates for each tender package as the project develops,
- 6.8.3.9. Update the project schedule including deliverable requirements to be provided for BCC: Information Services, Security to be integrated into base building,
- 6.8.3.10. Review and confirm the Class 'C' estimate with the 33% submission.
- 6.8.3.11. Prepare a Class 'B' estimate for submission with the 66% submission.
- 6.8.3.12. Prepare a final Class 'A' estimate with the 99% submission (for each tender package) including estimated annual cash flows during projected construction period,
- 6.8.3.13. Review and approve materials and construction processes and specifications to meet sustainable development objectives and commissioning.
- 6.8.3.14. Establish quality control process to be implemented during construction through sample mock-ups or model areas as part of Construction and Contract Administration stage.
- 6.8.3.15. For all disciplines, develop outline for project specific Operation and Maintenance Manuals for each building system,
- 6.8.3.16. In collaboration with all relevant disciplines; Authorities having Jurisdiction; and relevant Federal, Provincial, and Municipal codes, standards and legislative requirements for the project, refine, develop, and prepare:
  - 6.8.3.16.1. Final code statement;
  - 6.8.3.16.2. Final zoning data summary;
  - 6.8.3.16.3. Final fire separations and life safety plans;
  - 6.8.3.16.4. 100% complete construction documents for submission to local authority for review. As during the previous design stages, the review of the construction documents by local authorities will also occur during the Tender Call, Bid Evaluation, and Construction Contract Award stage.
  - 6.8.3.16.5. Sign and seal one (1) set of 100% complete construction documents for building permit application; and
  - 6.8.3.16.6. Provide necessary follow-up regarding building permit application.

#### 6.8.4. Deliverables

- 6.8.4.1. Deliverables shall occur in four stages, completeness of the project development shall reflect the stage of submission: 33%, 66%, 99% and 100%.
- 6.8.4.2. Separate tender packages (only applicable to furniture procurement)
  - 6.8.4.2.1. Separate tender packages for each BCC component as defined in Section 3.3.11.
- 6.8.4.3. The Consultant Team shall prepare and submit an integrated Stage Four Project Report, Construction Documents as well as the 100% construction documents (drawings and specifications) for review and approval by the Departmental Representative. Revise as required by the Departmental Representative. Resubmit for acceptance. The construction documents report will update the Design Development report, consolidate the Scope and Activities identified above, and will continue to be utilized as the benchmark project control document to monitor progress of the project.
- 6.8.4.4. The Stage Four Project Report shall be provided in written narrative, graphic, model (traditional and / or computer generated), and photographic format.
- 6.8.4.5. Deliverables are similar at 33%, 66%, 99% stages; completeness of the project development shall reflect the stage of a submission.
- 6.8.4.6. 33, 66, and 99% Submissions.
  - 6.8.4.6.1. Coordinate all disciplines within and between all tender packages including any scope changes that may be required to remain within budget.
  - 6.8.4.6.2. Documented responses to RCMP review comments from previous submission.

- 6.8.4.6.3. Complete written peer reviews with responses to review comments and incorporate them into Construction Documents where required,
- 6.8.4.6.4. Complete specification and working drawings for all tender packages.
- 6.8.4.6.5. Complete Commissioning plan.
- 6.8.4.6.6. Outline Systems Operation Manual (SOM) detailing each building system.
- 6.8.4.6.7. Updated the energy model simulation including estimated annual energy cost as using current energy cost for the project location.
- 6.8.4.6.8. One copy of the complete colour schedules, including textures, sheens, colour chips and material samples.
- 6.8.4.6.9. One copy of support data, studies, calculations.
- 6.8.4.6.10. Updated Risk Analysis,
- 6.8.4.6.11. Updated project cost estimate,
- 6.8.4.6.12. Updated Project Schedule.
- 6.8.4.6.13. Update Project Log tracking all approved major decisions including those affecting changes to project scope, budget and schedule.

#### 6.8.4.7. Final Submission

- 6.8.4.7.1. This submission incorporates all revisions required by the review of the 99% submission. Provide the following for each tender package.
  - 6.8.4.7.1.1. Coordinate all disciplines between all tender packages including any scope changes that may be required to remain within budget.
  - 6.8.4.7.1.2. Complete set of originals of the working drawings for all tender packages in English.
  - 6.8.4.7.1.3. Complete sets of original specifications, in English.
  - 6.8.4.7.1.4. Class 'A' estimate.
  - 6.8.4.7.1.5. Complete Commissioning Plan.
  - 6.8.4.7.1.6. Update the Systems Operations Manual to reflect any changes from the 99% submission. Updated project schedule.
  - 6.8.4.7.1.7. Submit and obtain approval on plans and specifications required by Inspection Authorities before tender call.
  - 6.8.4.7.1.8. Update Project Log, tracking all approved major decisions including those affecting changes to project scope, budget and schedule.

#### 6.8.5. Presentations

- 6.8.5.1. The Consultant Team shall present the Construction Document stage as outlined in the Submissions, Review and Approval Process – Section 6.4.12.

#### 6.8.6. Construction Document Production In-Progress Reviews

##### 6.8.6.1. Technical and Production Meetings (Project Delivery Coordination Meetings)

- 6.8.6.1.1. Production of construction documents will be reviewed during the meetings arranged by the RCMP Departmental Representative and Consultant as required but at maximum intervals of two weeks.
- 6.8.6.1.2. Representatives from the RCMP support staff will be present as arranged by the RCMP Departmental Representative.

##### 6.8.6.2. The Consultant shall:

- 6.8.6.2.1. Ensure that the Consultant's staff and the sub-consultant representatives attend the technical and production meetings as required.
- 6.8.6.2.2. Arrange for all necessary data, progress prints.
- 6.8.6.2.3. Prepare minutes of the meetings and distribute copies to all participants.

##### 6.8.6.3. Progress Review

- 6.8.6.3.1. As work progresses on construction drawings, submit drawings, schedules, details, specifications based on the NMS, pertinent design data, updated cost plan, updated project schedule, updated commissioning plan and updated outline O&M manuals as required.

## 6.8.7. Supplementary Construction Document Submission Requirements

### 6.8.7.1. Building Operation and Manual (BOM)

- 6.8.7.1.1. Consultant Team shall develop the BOM for all disciplines based on the O&M information to allow detachment staff an overview of the building and operation and maintenance activities.
- 6.8.7.1.2. BOM to include diagrams, pictures and illustration of each system with step by step by instructions.
- 6.8.7.1.3. For each discipline, provide all design intents, narrative sequence of operation (philosophy).
- 6.8.7.1.4. For architectural systems, summarize the type of building finishes and their locations.
- 6.8.7.1.5. Provide emergency start-up / operations / shutdown and Business continuity (system redundancy) procedures, and seasonal switchover procedures.
- 6.8.7.1.6. Provide reduced Single Line Diagrams of all systems. Include Preventative Maintenance Support System (PMSS) / Maintenance Management System (MMS) nomenclature for each piece of equipment on the drawings.
- 6.8.7.1.7. Include simplified floor plans indicating zoning of HVAC systems.

### 6.8.7.2. Commissioning Specifications

- 6.8.7.2.1. Use NMS as the basis for the project specifications AV. Prepare additional specifications for systems where NMS specifications do not exist. Complete design information required in the performance verification report forms.
- 6.8.7.2.2. Specify detailed performance verification procedures and output, documents, scheduling and reporting requirements.
- 6.8.7.2.3. Identify and include in specification all tests to be conducted at manufacturer's plants, on-site during construction, installation, commissioning on-site and during the operation phase.
- 6.8.7.2.4. Develop a training package for Operation & Maintenance personnel and include in specification.
- 6.8.7.2.5. Use NMS for the identification of equipment and inventory in conjunction with the PMSS / MMS.
- 6.8.7.2.6. Provide PMSS / MMS coding and system nomenclature on tender documents within equipment schedules and on all single line diagrams.
- 6.8.7.2.7. Obtain approval of equipment PMSS / MMS identification from the RCMP Departmental Representative or designate.

### 6.8.7.3. Commissioning Submission Requirements

- 6.8.7.3.1. Outline commissioning plans and specifications included with the 33% construction documents should include the following:
  - 6.8.7.3.1.1. Typical floor plans with general ductwork layouts and duct sizes
  - 6.8.7.3.1.2. Mechanical equipment room layouts and sections with all major systems
  - 6.8.7.3.1.3. Schematics of EMCS, system architecture, sequence of operation, wiring diagrams
  - 6.8.7.3.1.4. Riser diagrams
  - 6.8.7.3.1.5. System schematics
  - 6.8.7.3.1.6. Complete specifications including all sections
  - 6.8.7.3.1.7. Commissioning sequence plan
  - 6.8.7.3.1.8. Building management manual and training plan
  - 6.8.7.3.1.9. Updated O&M budget
  - 6.8.7.3.1.10. General plumbing and fixtures layout
- 6.8.7.3.2. The detailed commissioning specifications are to be submitted with the 66% construction documents stage and updated and resubmitted at each subsequent stage of the construction documents.

- 6.8.7.3.3. The BOM and O&M Manual is to be submitted with the 66% construction documents, and is updated and resubmitted during subsequent stages of the construction documents.
  - 6.8.7.3.4. PMSS / MMS system and equipment codes are identified for each piece of mechanical and electrical equipment with the 66% construction documents. Completed PMSS / MMS numbering (with equipment unit counters) for all mechanical and electrical equipment are to be provided at the 99% stage. Submit a comprehensive Commissioning Plan for all systems.
  - 6.8.7.3.5. Submit a comprehensive system operator Training Plan.
  - 6.8.7.3.6. Final submission of BOM, O&M manual and System operator training plan documents to be English.
- 6.8.7.4. Final Furniture and Equipment Plans:
- 6.8.7.4.1. The Consultant shall prepare final furniture and equipment plans and specifications. Plans and information to include but are not limited to the following:
    - 6.8.7.4.1.1. Final partition locations,
    - 6.8.7.4.1.2. Final layout of all furniture, furnishings and equipment pertaining to open and enclosed workstations / work settings, support space and special purpose space, include critical dimensions as required,
    - 6.8.7.4.1.3. Identification of end-user positions/functions at each open workstation, enclosed office or workstation setting,
    - 6.8.7.4.1.4. Review of supplier / manufacturer component counts, fittings, and all accessories,
    - 6.8.7.4.1.5. Final location and identification of all equipment, including but not limited to network equipment and video displays,
    - 6.8.7.4.1.6. Review plans to confirm compliance with all Code requirements related to life safety, and accessibility,
    - 6.8.7.4.1.7. Electrical, telephone, data, voice and video infrastructure including but not limited to cable trays and wire ways in support of selected systems layout / locations.
    - 6.8.7.4.1.8. Based on approved colour scheme presented in Concept Design Stage prepare a Final finishes presentation board for all furniture requirements,
      - 6.8.7.4.1.8.1. Prepare a report with written and graphic identification of all furniture finishes, including samples and specifications for all panels, work surfaces, seating, filing, and accessories and all freestanding furniture.
    - 6.8.7.4.1.9. Based on the final equipment and furniture layout plans, coordinate with the mechanical and electrical including telecommunications Sub-Consultants to incorporate M&E space and location requirements on the final equipment and furniture plans as well as to ensure the M&E drawings accurately reflect the furniture and equipment layout. For the Interior Design Sub-Consultant these include the following:
      - 6.8.7.4.1.9.1. Lighting layout, and zoning,
      - 6.8.7.4.1.9.2. Task lighting systems and controls,
      - 6.8.7.4.1.9.3. Location of light switches,
      - 6.8.7.4.1.9.4. Location of thermostats,
      - 6.8.7.4.1.9.5. Fire hose cabinets location and space requirements,
      - 6.8.7.4.1.9.6. Additional cooling / exhaust location requirements,
    - 6.8.7.4.1.10. Based on final equipment and furniture layout plans, coordinate preparation of telecommunications plans to identify the location and number of telephone, data and video outlets. The telecommunications plans are to clearly indicate position and locations of all occupants of the space.

6.8.7.5. Furniture / Equipment (BCC)

6.8.7.5.1. Furniture including but not limited to specialized operating consoles and equipment including audio visual system installations may form part of separate tender packages to be prepared by the Consultant or included in the main project.

6.8.7.5.2. Prepare plans and specifications at the 33%, 66%, 99% and Final submissions for all required tender packages.

6.8.7.5.3. Prepare systems furniture and equipment systems contract documents drawings and specifications including the following:

6.8.7.5.3.1. Location of acoustical screens complete with critical installation dimensions,

6.8.7.5.3.2. Location of all panel supported or free standing work surfaces and related components for all work stations,

6.8.7.5.3.3. List of all accessories and lighting components,

6.8.7.5.3.4. Location of all accessories and lighting components to be supported from the panels, work surfaces or overhead bins; this to be identified on an interior elevation or isometric view of typical workstation types,

6.8.7.5.3.5. Telephone, electrical and data source locations,

6.8.7.5.3.6. List of screens complete with electrical harnesses and outlets,

6.8.7.5.3.7. Legend indicating type, size, fabric(s) and electrical requirements.

6.8.7.5.3.8. Location, size, mounting and connectivity requirements for Audio/Visual all and specialized systems and equipment.

**6.9. TENDER CALL, BID EVALUATION AND CONSTRUCTION CONTRACT AWARD**

6.9.1. Intent

6.9.1.1. Provide technical support and documentation to the Departmental Representative to support the Contract Authority as required to issue and execute the tender calls, evaluate bids and award contracts.

6.9.2. Scope and Activities

6.9.2.1. Provide technical documentation in the form of plans and specifications to the Departmental Representative as prescribed.

6.9.2.2. Consultant and representatives of each sub-consultant discipline to attend bidders briefing meeting(s).

6.9.2.3. Prepare addenda based on questions arising in such meetings for issue by the Contracting Authority.

6.9.2.4. Provide the Departmental Representative with all information required by Bidders to fully interpret the Construction Documents.

6.9.2.5. Make recommendations for issue of addenda as a result of informal inquiries, as required.

6.9.2.6. Provide a summary of inquiries at the conclusion of the tender period for project records.

6.9.2.7. Assist in tender evaluation by providing advice on the following:

6.9.2.7.1. The completeness and compliance with tender requirements of tender submissions in all respects,

6.9.2.7.2. The effect of alternatives and qualifications, which may have been included in the tender,

6.9.2.7.3. Evaluation and explanation of variations to the tender cost which exceed 10% of the pre-tender estimate,

6.9.2.7.4. The bidders capability to undertake the full scope of work.

6.9.2.8. If the Contract Authority must re-tender the project, or any specific tender package (i.e. furniture and equipment) for reasons other than cost overruns, provide proposals for additional services as required to the Departmental Representative to revise the scope of work of the tendered work.

6.9.2.9. If tenders exceed the pre-tender estimate by 10% or more, revise and amend for re-tender, at no additional cost, the construction documents to bring the cost of the work within the limits stipulated, as per the terms and conditions of the contract.

- 6.9.2.10. Examine and report on any cost and schedule impact created by the issue of tender/contract addenda.
- 6.9.2.11. Analyze, revise and resubmit requests from the municipal building department with respect to the building permit application.
- 6.9.2.12. Follow up with the Municipal Office on the status of the building permit application.

#### 6.9.3. Deliverables

- 6.9.3.1. Electronic copies of drawings and specifications
- 6.9.3.2. Addenda as required
- 6.9.3.3. Changes to the documents, if re-tendering is necessary
- 6.9.3.4. Updated cost estimate and schedule.
- 6.9.3.5. Submit to the Departmental Representative, in English, three (3) signed and sealed and one (1) electronic copy of the complete tender documents with all incorporated addenda for all tender packages.
- 6.9.3.6. Prepare an integrated Stage Five Project Report, Tender Call, Bid Evaluations & Construction Contract Awards, which consolidates, and reports on, the Scope and Activities identified above for review and acceptance by the Departmental Representative. Revise as required by the Departmental Representative. Resubmit for acceptance.

### **6.10. CONTRACT ADMINISTRATION BY CONSULTANT DURING CONSTRUCTION**

#### 6.10.1. Intent

- 6.10.1.1. Consultant to implement the project in compliance with the Contract documents and direct and monitor all necessary or requested changes to the scope of work during construction.

#### 6.10.2. Scope and Activities

- 6.10.2.1. Coordinate all activities with the Departmental Representative,
- 6.10.2.2. During the implementation of the project, lead activities, in consultation with the RCMP Departmental Representative to the extent provided in this document,
- 6.10.2.3. Carry out the review of the work at appropriate intervals to determine if the work is in conformity with the Contract Documents,
- 6.10.2.4. Keep the RCMP Departmental Representative informed of the progress and quality of the work and report any defects or deficiencies in the work observed during the course of the site review,
- 6.10.2.5. Ensure compliance with Commissioning Plan, update plan as necessary,
- 6.10.2.6. Determine the amounts owing to the Contractor based on the progress of the work, and certify payments to the Contractor,
- 6.10.2.7. Act as interpreter of the requirements of the contract documents,
- 6.10.2.8. Provide cost advice during construction,
- 6.10.2.9. Advise the RCMP Departmental Representative of all potential changes to scope for the duration of the implementation,
- 6.10.2.10. Review the Contractor's submittals,
- 6.10.2.11. Prepare and justify documentation drafted for change orders for issue by the Contract authority,
- 6.10.2.12. Indicate any changes or material / equipment substitutions on Record Documents,
- 6.10.2.13. During the twelve (12) month warranty period, investigate all defects and alleged defects and issue instructions to the Contractor,
- 6.10.2.14. Prepare and post Systems Operating Instructions for BOM,
- 6.10.2.15. Finalize Systems Operations Manual and O&M Manual to 100% status, reflecting as-commissioned operation of all building systems. Submit two (2) copies in English, and two (2) in electronic format,
- 6.10.2.16. Conduct a final warranty review.



6.10.2.17. Confirm:

- 6.10.2.17.1. Building permit issued;
- 6.10.2.17.2. Notice of project with the Workplace Compensation Board (WCB);
- 6.10.2.17.3. Relevant inspection agencies notified;
- 6.10.2.17.4. Negotiate / finalize occupancy permit with authorities having jurisdiction;
- 6.10.2.17.5. Contractor to submit and pay for occupancy permit; fees for permit to be handled as a disbursement.

6.10.3. Deliverables

- 6.10.3.1. The consultant shall supply to the successful contractor, one set of "Issued for Construction" drawings in digital format, that have incorporated all addenda issued during the tendering phase and have been signed and sealed by all disciplines.
- 6.10.3.2. It is expected that there will be a minimum of 48 bi-weekly on-site construction project meetings (assuming a period of two years for construction), including periodic site inspections required for Mechanical, Electrical, Sustainability, Landscape, Civil, Structural, Commissioning and Integrated Systems Testing (IST) sub-consultants. It may be deemed necessary, to arrange teleconference calls with all project stakeholders prior to, or in place of, the regularly scheduled construction site meetings to review project status and work through challenges and issues prior to arriving on the construction site.
- 6.10.3.3. Written reports from site visits including persons involved,
- 6.10.3.4. Written reports on the progress of the work and the cost of the project at the end of each month with progress claims,
- 6.10.3.5. Additional detail drawings when required to clarify, interpret or supplement the Construction Documents,
- 6.10.3.6. Post contract drawings.
- 6.10.3.7. Interim or Final certificates,
- 6.10.3.8. Debrief Notes of Commissioning activities outlining the commissioning process, major activities, and lessons learned from this project,
- 6.10.3.9. Systems Operation Manual and O&M Manual to reflect as-commissioned operation and maintenance of each building system
- 6.10.3.10. Building Operation and Maintenance Manual to reflect as-commissioned operation and maintenance of each building system,
- 6.10.3.11. As-built records and As-Built specifications including sub-set pathways and service infrastructure locations for BCC: Information Services and Security,
- 6.10.3.12. Warranty deficiency list,
- 6.10.3.13. Project Log tracking all approved major decisions including those affecting changes to project scope, budget and schedule,
- 6.10.3.14. Report on Final Warranty Review, Stage Six Project Report, Construction and Contract Administration, which consolidates and reports on the Scope and Activities identified above for review and approval by the Departmental Representative. Revise as required by the Departmental Representative. Resubmit for acceptance.

6.10.4. Deliverables – FURNITURE DESIGN

- 6.10.4.1. In coordination with the Departmental Representative, gain access to PSPC's most recent online versions of Client Service Tools (Six Excel filterable documents), and Chair Builder Tools (Several Word and .PDF documents) in order to undertake the following:
  - 6.10.4.1.1. Become familiarized with PSPC Furniture Design protocols and procedures;
  - 6.10.4.1.2. Host User Input meetings: schedule, host, record minutes and distribute within four (4) working days of the same meeting;
  - 6.10.4.1.3. Create a Furniture Fitment Plan to reflect the requirements from Users in .PDF;
  - 6.10.4.1.4. Create a Seating Plan to reflect the requirements from Users in .PDF;

- 6.10.4.1.5. Create a Furniture Product Listing for Furniture in .PDF;
  - 6.10.4.1.6. Create a Panel Matrix Listing for Furniture in .PDF;
  - 6.10.4.1.7. Create a Product Listing for Furniture in .PDF.
  - 6.10.4.2. Retain the services of a Furniture Design Consultant/Interior Design Consultant to complete this section of Deliverables.
  - 6.10.4.3. Provide technical bid evaluation expertise during the tender period.
  - 6.10.4.4. Advise for and assist/act as a retained Consultant the RCMP Departmental Representative during the shop drawing submittal and approval, invoicing, fabrication and installation processes.
- 6.10.5. Details
- 6.10.5.1. Construction Meetings
    - 6.10.5.1.1. Immediately after contract award, arrange a briefing meeting with the RCMP Departmental Representative.
    - 6.10.5.1.2. Prepare minutes of the meeting and distribute copies to all participants and to other persons agreed upon with the Departmental Representative.
    - 6.10.5.1.3. In consultation with the RCMP Departmental Representative, call job meetings as frequently as required, commencing with the construction-briefing meeting.
    - 6.10.5.1.4. Prepare minutes of the meetings and distribute copies to all participants.
  - 6.10.5.2. Project Schedule
    - 6.10.5.2.1. As soon as possible after contract award, obtain Project Schedule from the Contractor. Schedule to include;
      - 6.10.5.2.1.1. All construction activities
      - 6.10.5.2.1.2. Schedule of delivery requirements for BCC Information Services, Security to be integrated into base building
      - 6.10.5.2.1.3. All related works
      - 6.10.5.2.1.4. Detailed commissioning component shown separately,
    - 6.10.5.2.2. Review the construction schedule, identify conflicts and make recommendations on options to reduce timeline where possible.
    - 6.10.5.2.3. Monitor the approved construction schedule, take necessary steps to ensure that the schedule is maintained and submit a detailed report to the RCMP Departmental Representatives concerning any delays.
    - 6.10.5.2.4. Keep accurate records of causes of delays.
    - 6.10.5.2.5. Make every effort to assist the Contractor(s) to avoid delays.
    - 6.10.5.2.6. Ensure the Commissioning Schedule is updated at the start of the Commissioning Phase of the project. Routinely update this schedule throughout the commissioning of the work.
  - 6.10.5.3. Time Extensions
    - 6.10.5.3.1. Only the Contract Authority may authorize any request for Time Extensions. Authorization must be issued in writing.
  - 6.10.5.4. Cost Breakdown
    - 6.10.5.4.1. Review the Contractor(s) detail cost breakdown on forms approved by the RCMP Departmental Representative and submit to the RCMP Departmental Representative, with Progress Claims.
  - 6.10.5.5. Labour Requirements
    - 6.10.5.5.1. The Contractor(s) is/are bound by the Contract to maintain competent and suitable

workers on the project and to comply with the Canada Department of Labour - Labour Conditions.

6.10.5.5.2. Inform the RCMP Departmental Representative, of any labour situations that appear to require corrective action.

6.10.5.5.3. The Consultant shall ensure that a copy of the Labour Conditions for the Contract is posted in a conspicuous place on-site.

6.10.5.6. Bylaw Compliance

6.10.5.6.1. Ensure that construction complies with applicable bylaws and regulations.

6.10.5.7. Construction Safety

6.10.5.7.1. Construction safety is the responsibility of the Contractor.

6.10.5.7.2. Monitor construction safety programs and practices on site and advise the Departmental Representative of issues of non-compliance.

6.10.5.7.3. At minimum compliance with safety legislation and regulations from the following are mandatory:

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

6.10.5.7.3.2. Fire safety provisions during construction must comply with Federal regulations.

6.10.5.7.3.3. In addition to the above, the Contractor(s) must comply with the provincial and municipal safety laws and regulations, and with any instructions issued by the officers of these authorities having jurisdiction relating to construction safety.

6.10.5.7.3.4. Ensure the Contractor(s) is/are providing all required coordination, isolation, protection and reinstatement of the fire protection and suppression systems throughout construction.

6.10.5.7.3.5. Ensure that the Contractor(s) adhere(s) to the National Building Code (current edition) for safety measures at construction and demolition sites and National Fire Code (current edition) for fire safety at construction and demolition sites and Canada Labour Code part 2.

6.10.5.8. Site Visits

6.10.5.8.1. Provide construction review services.

6.10.5.8.2. Ensure compliance with contract documents.

6.10.5.8.3. Provide services of qualified personnel who are fully knowledgeable with technical and administrative requirements of project.

6.10.5.8.4. Establish a written understanding with Contractor(s) as to what stages or aspect of the work are to be inspected prior to being covered up.

6.10.5.8.5. Assess quality of work and identify in writing to the Contractor(s) and the RCMP Departmental Representative, all defects and deficiencies observed at time of such inspections.

6.10.5.8.6. Inspect materials and prefabricated assemblies and components at their source or assembly plant, as necessary for the progress of the project.

6.10.5.8.7. Any directions, clarifications or deficiency list shall be issued in writing to the Contract Authority and the RCMP Departmental Representative.

6.10.5.8.8. Provide clarifications on Plans and Specifications or site conditions as required so that project is not delayed.

6.10.5.9. Progress Reports

- 6.10.5.9.1. Report to the Contract Authority and the Departmental representative regularly on the progress of the work. Submit monthly reports.
- 6.10.5.10. Work Measurement
  - 6.10.5.10.1. If work is based on unit prices, measure and record the quantities for verification of monthly progress claims and the Final Certificate of Measurement.
  - 6.10.5.10.2. When Contemplated Change Notice is to be issued based on Unit Prices, keep accurate account of the work. Record dimensions and quantities.
- 6.10.5.11. Detail Drawings
  - 6.10.5.11.1. Provide for the RCMP Departmental Representative's information, any additional detail drawings as, and when required, to properly clarify or interpret the contract documents.
- 6.10.5.12. Shop Drawings
  - 6.10.5.12.1. Selected shop drawings will require review by the RCMP. Prepare a listing of all required shop drawings for identification of submissions requiring review by RCMP. Shop drawings requiring RCMP approval shall not be returned to the Contractor until review has been completed.
  - 6.10.5.12.2. On completion of project, forward one (1) copy of reviewed shop drawings to the RCMP. Ensure that shop drawings include the project number and are recorded in sequence.
  - 6.10.5.12.3. Verify the number of copies of shop drawings required. Consider additional copies for RCMP review.
  - 6.10.5.12.4. Shop drawings shall be stamped: "Checked and Certified Correct for Construction" by the Contractor(s) and stamped: "reviewed" by the Consultant before return to the Contractor(s).
  - 6.10.5.12.5. Expedite the processing of Shop Drawings.
  - 6.10.5.12.6. All equipment must be CSA approved, or CSA equivalent. In the case of equivalency, provide letters of approval for use in Canada.
- 6.10.5.13. Inspection and Testing
  - 6.10.5.13.1. Provide the Departmental Representative with recommended list of tests to be undertaken, including on-site and factory testing.
  - 6.10.5.13.2. Ensure all testing is detailed within Commissioning Plan.
  - 6.10.5.13.3. When contract is awarded, assist the Departmental Representative and the Contractor in briefing the testing firm on required services, distribution of reports, communication lines.
  - 6.10.5.13.4. Attend acoustic tests conducted by third party.
  - 6.10.5.13.5. Witness all factory and on-site testing, including testing during off-hours.
  - 6.10.5.13.6. Review all test reports and take necessary action with the Contractor(s) when work fails to comply with contract.
  - 6.10.5.13.7. Immediately notify the Departmental Representative if tests fail to meet project requirements and when corrective work will affect schedule.
  - 6.10.5.13.8. Assist the Departmental Representative in approving all Contractor's sample mock-ups or model areas that will be used to establish benchmarks for acceptable construction standards.
  - 6.10.5.13.9. The Contractor will be required to obtain approvals before proceeding with construction of each sample mock-up and model area.
  - 6.10.5.13.10. Coordinate with the RCMP Security subject matter experts who will inspect and

ensure acceptability of all aspects of security during construction.

6.10.5.14. Training

6.10.5.14.1. Prior to tender, provide the RCMP Departmental Representative, with recommended list of training to be undertaken.

6.10.5.14.2. Ensure all training is detailed within the Commissioning Plan.

6.10.5.15. Construction Changes

6.10.5.15.1. The Consultant does not have authority to change the work or the price of any Contract(s).

6.10.5.15.2. Changes, which affect cost or design concept, must be approved by the Contract Authority.

6.10.5.15.3. Upon RCMP approval, review quotations from the Contractor(s) in detail. Review prices and forward recommendations to the Departmental Representative promptly.

6.10.5.15.4. The Contract Authority will issue Change Orders to the Contractor(s), with copy to the Departmental Representative and the Consultant.

6.10.5.15.5. All changes must be covered by Change Orders. Changes with no monetary implications must be covered by Supplemental Instructions or \$0 Change Orders for schedule extensions.

6.10.5.16. Review Contractor Progress Claims

6.10.5.16.1. Each month the Contractor(s) submits a progress claim for work and materials as required in the Construction Contract(s).

6.10.5.16.2. The claims are made by completing the following forms where applicable:

6.10.5.16.2.1. Request for Progress Payment,

6.10.5.16.2.2. Cost Breakdown for Fixed Price Contract,

6.10.5.16.2.3. Copy of good standing with WCB,

6.10.5.16.2.4. Statutory Declaration Progress Claim.

6.10.5.16.3. Consultant to review and sign designated forms and promptly forward claims to the RCMP Departmental Representative for processing.

6.10.5.16.4. Submit with each progress claim:

6.10.5.16.4.1. Updated schedule of the progress of the work.

6.10.5.16.4.2. Photographs of the progress of the work.

6.10.5.17. Monitor Materials On-Site

6.10.5.17.1. The Contractor(s) may claim for payment of material on-site but not incorporated in work.

6.10.5.17.2. Material must be stored in a secure place.

6.10.5.17.3. Detailed list of materials with supplier's invoice showing price of each item must accompany claim; Consultant shall check and verify the list.

6.10.5.17.4. Items shall be listed separately on the Detail Sheet after the breakdown list and total.

6.10.5.17.5. As material is incorporated in the work, the cost must be added to the appropriate Detail item and removed from the material list.

6.10.5.18. RCMP Stakeholders and Consultant

6.10.5.18.1. Consultant to inform the Departmental Representative when satisfied that the project is substantially completed.

6.10.5.18.2. The Consultant shall ensure that his representative, sub-consultant representative, Contractor(s) and major sub-trades representatives shall contribute as professionals to project acceptance and attend all meetings as organized by the RCMP Departmental Representative.

6.10.5.19. Interim Inspection

6.10.5.19.1. The RCMP Departmental Representative and Consultant shall inspect the work and list all unacceptable and incomplete work on a designated form.

6.10.5.19.2. The Consultant and Departmental representative may accept the project from the Contractor(s) subject to the deficiencies and uncompleted work listed and priced.

6.10.5.19.3. The Contractor(s) will be required to provide a work plan of actions and schedule to correct all deficiencies.

6.10.5.19.4. The Consultant shall coordinate with the RCMP Departmental Representative to monitor, inspect and report on the progress of deficiencies corrections.

6.10.5.20. Interim Certificates

6.10.5.20.1. Payment requires completion and signing, by the parties concerned, of the following documents:

6.10.5.20.1.1. Interim Certificate of Completion,

6.10.5.20.1.2. Cost of Breakdown for Fixed Price Contract,

6.10.5.20.1.3. Cost of Breakdown for Unit Pricing or Cash Allowance claims,

6.10.5.20.1.4. Inspection and Acceptance,

6.10.5.20.1.5. Statutory Declaration Interim Certificate of Completion,

6.10.5.20.1.6. Workers Compensation Board Certificate.

6.10.5.20.2. Verify that all items are correctly stated and ensure that completed documents and any supporting documents are furnished to the Departmental Representative for processing.

6.10.5.21. Furniture / Equipment Delivery and Installation

6.10.5.21.1. Delivery and installation of Furniture / Equipment to be coordinated by Consultant in consultation with the RCMP representative and suppliers.

6.10.5.21.2. Final delivery dates to be confirmed with the RCMP.

6.10.5.21.3. Consultant to be on-site during the delivery of Furniture / Equipment identified for each floor of the project to confirm delivery of appropriate product.

6.10.5.21.4. Consultant to confirm that all quantities of all Furniture / Equipment furnishings and components have been delivered. Consultant to prepare deficiency list of all damaged or missing items.

6.10.5.21.5. Consultant to oversee installation of Furniture / Equipment by supplier.

6.10.5.21.6. Consultant to provide deficiency list to the RCMP Departmental Representative for each floor of Furniture / Equipment delivered.

6.10.5.22. Building Occupation

6.10.5.22.1. The RCMP may occupy the building after the date of acceptance of the building by the RCMP Departmental Representative and Consultant. The acceptance date is normally that of the Substantial Completion Certificate issued to the Contractor(s).

6.10.5.23. Building Operation and Maintenance Manual

6.10.5.23.1. Develop and coordinate a building operation and maintenance manual (BOM).

Based on the O&M manual, develop a building maintenance guide with instructions on how to operate, service, maintain all building systems. BOM is to be written for use by detachment staff as service personnel are not readily available to provide facility maintenance.

6.10.5.24. Operation and Maintenance Data Manual

6.10.5.24.1. Contractor to produce two (2) electronic versions of all volumes and two (2) hard copy sets of each volume of the Building Operations and Maintenance Manual in

accordance with project specifications. BOM to be verified for completeness, relevance and format by the Architect, Mechanical and Electrical Engineer then submitted to the RCMP Departmental Representative prior to interim acceptance or actual start of operation and instruction period, whichever occurs sooner.

6.10.5.24.2. Prior to submission to the RCMP Departmental Representative, consultant to provide written comment in detail indicating the acceptability of all manuals.

6.10.5.24.3. The Contractor(s) shall retain one (1) copy of each volume for his record and use during the instruction period.

6.10.5.25. Instruction of Operating Personnel

6.10.5.25.1. Make arrangements and ensure that RCMP designated operating personnel are properly instructed on the operation of all services and systems using the final manuals as reference.

6.10.5.25.2. Consultant to review training sessions content, as required, on the subject of design intent and systems operations. Utilize Systems operations manual for training sessions. Consultant monitor.

6.10.5.25.3. Contractor to provide step-by-step instructions for operating personnel to follow should equipment fail or stop working. Consultant monitor.

6.10.5.26. Keys

6.10.5.26.1. Ensure that all keys and safe combinations are delivered to the RCMP as directed by the RCMP Departmental Representative.

6.10.5.27. Final Inspection

6.10.5.27.1. Consultant to inform the Project Authority when satisfied that all work under the contract has been completed, including the deficiency items documented during the Interim Inspection.

6.10.5.27.2. The RCMP 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.

6.10.5.28. Final Certificate

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

6.10.5.28.1.1. Final Certificate

6.10.5.28.1.2. Occupancy Permit/Schedule C

6.10.5.28.1.3. Cost Breakdown

6.10.5.28.1.4. Inspection and Acceptance

6.10.5.28.1.5. Statutory Declaration Final Certificate of Completion

6.10.5.28.1.6. Workmen's Compensation Clearance Certificate

6.10.5.28.1.7. Fire Alarm Inspection Verification (FAVI) Certificate.

6.10.5.29. Building Acceptance and Occupation

6.10.5.29.1. The official take-over of the project (or parts of the project) from the Contractor is established by the Consultant and the RCMP Departmental Representative. The date of Interim Certificate of Completion signifies commencement of the 12-month warranty period for work completed on the date of each certificate.

6.10.5.29.2. Provide the RCMP Departmental Representative with original copy of Contractor's warranties for all materials and work covered by an extended warranty or guarantee, according to the conditions of the specifications. Verify their completeness and extent of coverage.

#### 6.10.5.30. As-Built Record Drawings and As-Built Specifications

- 6.10.5.30.1. Following the take-over, obtain as-built marked-up hard copy from the Contractor(s).
- 6.10.5.30.2. Consultant to review As-Built set to ensure significant deviations in construction from the original Contract drawings, including changes shown on Post-Contract Drawings, changes resulting from Change Orders or from On-Site Instructions are clearly shown.
- 6.10.5.30.3. Verify at each progress payment that the Contractor(s) has/have accurately recorded information on the site as-built set of construction documents.
- 6.10.5.30.4. Indicate PMSS / MMS numbers for each piece of mechanical and electrical equipment on each drawing.
- 6.10.5.30.5. Check and verify all As-Built records for completeness and accuracy and submit to the RCMP Departmental Representative.
- 6.10.5.30.6. Produce Record Drawings by incorporating final As-Built-information into project drawings. Delivered electronically in both PDF and DWG format.
- 6.10.5.30.7. Update the specification to reflect As-Built-information.
- 6.10.5.30.8. Submit a comprehensive consolidated final package of Record Drawings and As-Built Specifications in number and format required by the Contract within twelve (12) weeks of the Final Certificate.
- 6.10.5.30.9. Provide a complete set of final shop drawings in hard copy (3 copies) and (1) electronic format.
- 6.10.5.30.10. Produce a building maintenance guide (BOM) covering all building systems. Based on the O&M manuals information, the maintenance guide, provide instruction and illustrations on how to operate, service, maintain all building systems. Guide is to be written for use by detachment staff as service personnel are not readily available to provide facility maintenance.

### **6.11. COMMISSIONING AND INTEGRATED SYSTEMS TESTING**

#### 6.11.1. Commissioning Objectives

##### 6.11.1.1. The objectives of commissioning are:

- 6.11.1.1.1. To document the design intent of the overall project and the proposed building systems and components and to verify and demonstrate that all functional and operational requirements have been correctly interpreted in the Design solution.
- 6.11.1.1.2. Develop a Building Operation and Maintenance (BOM) manual
- 6.11.1.1.3. To document the operational, maintenance and building management requirements
- 6.11.1.1.4. To minimize O&M costs through the careful selection of design solutions (for economy, reliability, durability, accessibility, and maintainability), construction materials, installation practices, performance verification procedures.
- 6.11.1.1.5. To verify that the selected design solutions and the resultant built works protect the safety, health, welfare and comfort of occupants and O&M personnel.
- 6.11.1.1.6. To define responsibility areas for meeting the operational requirements in the contract documents and include a process to demonstrate compliance.
- 6.11.1.1.7. To demonstrate that the RCMP's requirements are met during the project implementation and commissioning phases of the project and to support quality management of construction and installation through verification of building components, systems and environments.
- 6.11.1.1.8. To ensure that the commissioning process is implemented and documented



according to the approved Commissioning Plan and in accordance with the Commissioning Schedule.

6.11.1.1.9. To verify and demonstrate that all systems operate consistently at peak efficiencies, under all normal load conditions, and within the specified energy budget.

6.11.1.1.10. To implement a comprehensive training program.

6.11.1.1.11. To transfer the completed works to qualified facility operators.

6.11.1.1.12. Consultant to include costs for FAVI in their fee proposal.

#### 6.11.2. General Description of Commissioning

6.11.2.1. All commissioning shall be in accordance with the PSPC Commissioning Manual (CP.1), current edition, and all associated PSPC Commissioning Guidelines but suited to the specific requirements of the project. These documents consist of:

6.11.2.1.1. PSPC Commissioning Manual (CP.1)

6.11.2.1.2. CP .2: Commissioning Glossary (forms Appendix B of CP.1)

6.11.2.1.3. CP .3: Guide to development of the Commissioning Plan

6.11.2.1.4. CP .4: Guide to the development of Building Management Manuals

6.11.2.1.5. CP .5: Guide to preparation of Training Plans

6.11.2.1.6. CP .7: Commissioning for Facilities Management and Operation

6.11.2.1.7. CP .8: Guide to the preparation of Commissioning Reports

6.11.2.1.8. CP .9: Guide to the development and use of Installation/Start-up Check Lists

6.11.2.1.9. CP .10: Guide to the development and use of Report Forms and Schematics

6.11.2.1.10. CP .11: Guide to the preparation of Commissioning Briefs

6.11.2.1.11. CP .12: Guide to the development and use of Commissioning Specifications

6.11.2.1.12. CP .13: Facility Maintenance Policy, Guidelines and Requirements

6.11.2.2. The PSPC Commissioning Manual (CP.1) and all associated PSPC Commissioning Guidelines are available online.

6.11.2.3. Commissioning includes architectural, structural, vertical transportation systems, interior and landscape systems, as well as the mechanical, electrical and life safety systems.

6.11.2.4. The Consultant must deliver concise and comprehensive information and reports on commissioning to the RCMP.

6.11.2.5. An enhanced commissioning program is required and will apply to all construction phases, base building and fit up work.

#### 6.11.3. Roles and Responsibilities

6.11.3.1. The RCMP Departmental Representative:

6.11.3.1.1. Has overall responsibility for managing the project and delivering the project on time and on budget.

6.11.3.2. The Consultant shall:

6.11.3.2.1. Establish Design Criteria, functional and operational requirements, if not already established in the RFP or Project Brief,

6.11.3.2.2. Establish an LCCA and, if necessary, revise and update with each submission,

6.11.3.2.3. Prepare a preliminary O&M budget and revise and update with each submission, containing detailed breakdowns of various items such as estimated electrical, mechanical, or specialty equipment annual energy consumption and systems maintenance, operation and/or service contract costs.

6.11.3.2.4. Prepare a preliminary Commissioning Budget and revise and update with each

submission.

- 6.11.3.2.5. Prepare a preliminary Commissioning Plan.
- 6.11.3.2.6. Prepare commissioning specifications for components, equipment, systems and integrated systems and incorporate same into the construction specifications,
- 6.11.3.2.7. Review maintenance management document (BOM), to be sufficiently complete for use during training, and to include:
  - 6.11.3.2.7.1. An explanation of the purpose of the facilities,
  - 6.11.3.2.7.2. An outline of the design intent of all systems,
  - 6.11.3.2.7.3. A narrative description of the project's conceptual framework,
  - 6.11.3.2.7.4. Documentation of all design decisions made throughout the project,
  - 6.11.3.2.7.5. A description of each building system; including architectural, structural, mechanical, electrical, civil, fire protection, acoustical and other building as well as site systems.
  - 6.11.3.2.7.6. All other relevant documentation.
- 6.11.3.2.8. Plan the commissioning and performance verification (PV) activities, processes and their output, including development of project-specific:
  - 6.11.3.2.8.1. Installation / Start-up Check Lists
  - 6.11.3.2.8.2. Product Information (PI) Report Forms and Performance Verification (PV) Report Forms, and
  - 6.11.3.2.8.3. Design data to PI and PV report forms
- 6.11.3.2.9. Prepare a detailed Training plan
- 6.11.3.2.10. Review the Contractor's detailed commissioning schedule for components, equipment, systems, and integrated systems. (PV tests will be performed by the Contractor).
- 6.11.3.2.11. Identify Contractor and subcontractor commissioning, PV and testing responsibilities,
- 6.11.3.2.12. Review shop drawings and product data and accompanying Product Information (PI) as completed by the Contractor,
- 6.11.3.2.13. Monitor commissioning activities, provide quality control reports to the RCMP throughout the construction, commissioning and operational phases of the work, including:
  - 6.11.3.2.13.1. Inspection and verification of as installed components, sub-system and systems on a regular basis during construction,
  - 6.11.3.2.13.2. Witnessing tests,
  - 6.11.3.2.13.3. Reviewing and verifying Testing, Adjusting and Balancing (TAB) reports,
  - 6.11.3.2.13.4. Reviewing and verifying Performance Verification (PV) Reports,
  - 6.11.3.2.13.5. Witnessing and certifying systems and integrated systems tests. Any test that cannot be commissioned due to design errors or omission must to be redesigned and re-commissioned..
- 6.11.3.2.14. Participate in the Training Plan by providing training on design philosophy, design intent and systems designs,
- 6.11.3.2.15. Witness and certify deferred tests, commissioning activities, PV, review and accept reports,
- 6.11.3.2.16. Identify and verify the rectification of all outstanding deficiencies,
- 6.11.3.2.17. Assist in the resolution of all issues relating to commissioning,
- 6.11.3.2.18. Prepare "as-built" documentation (plans and specifications) as described elsewhere in the RFP or Project Brief,

- 6.11.3.2.19. Assist in fine-tuning of systems and equipment as required during the warranty period,
- 6.11.3.2.20. Assist in systems checks and environmental checks during the warranty period,
- 6.11.3.2.21. Participate in warranty inspections and production of warranty inspection reports and address all warranty issues that may arise,
- 6.11.3.2.22. Ensure that the final product meets the Design Criteria, functional and operational requirements, the project objectives and all requirements of the RFP and Project Brief,
- 6.11.3.2.23. Develop BOM (Building Operations Manual),
- 6.11.3.2.24. Recommend acceptance of the complete project,
- 6.11.3.2.25. Assist the RCMP Departmental Representative in the preparation of a debriefing (Evaluation) report. To include, but not necessarily be limited to:
  - 6.11.3.2.25.1. A building evaluation summary with recommendations,
  - 6.11.3.2.25.2. Lessons learned from the project,
- 6.11.3.3. Consultant's Commissioning Coordinator:
  - 6.11.3.3.1. To assist in fulfilling a fully integrated and comprehensive commissioning program, the Consultant shall appoint a full-time commissioning coordinator with proven expertise in implementing commissioning programs, and who shall be responsible for detailed coordination of commissioning and provide direction for all matter relating to commissioning as described herein.

#### 6.11.4. Occupancy Requirements

- 6.11.4.1.1. Requirements for initial, interim and substantial occupancy including, for reasons of health and safety, full commissioning of all life safety systems. It may also include some form of "interim commissioning" of all non-life safety systems,
- 6.11.4.1.2. Overlapping of construction, commissioning and initial occupancy. This requires consideration of the effects of partial commissioning, delay of commissioning activities, the effects on insurance, warranties, certification, repetition of commissioning activities after full occupancy, and/or completion of fit-up contracts,
- 6.11.4.1.3. Post-occupancy commissioning activities during Operation, which will often be necessary for certain systems and equipment under these circumstances.

#### 6.11.5. Lifecycle Costing Criteria

- 6.11.5.1. When developing life cycle cost analyses for each option, use the following criteria:
  - 6.11.5.1.1. 30 years to next re-fit,
  - 6.11.5.1.2. 40 year investment horizon,
  - 6.11.5.1.3. Costs of utilities (e.g. hot water heating, chilled water, electricity, fuel consumption, potable water and sewage),
  - 6.11.5.1.4. Reliability, durability, operability, maintainability, accessibility and serviceability,
  - 6.11.5.1.5. Systems selection and staffing in response to annual operating cost criteria.

#### 6.11.6. Training

- 6.11.6.1. In consultation with the RCMP, monitor the Contractor(s) as they prepare a comprehensive training plan for the training of the Facility Management personnel, User (where deemed necessary) and operations and maintenance staff.
- 6.11.6.2. Training shall be in English.
- 6.11.6.3. The training plan shall enable O&M personnel to identify repair and maintenance needs

that might otherwise go undetected for long periods with possibly serious consequences.

- 6.11.6.4. Training shall enhance monitoring and diagnostic capabilities and result in more efficient, cost-effective operation of the facility.
  - 6.11.6.5. Training must clearly relay:
    - 6.11.6.5.1. A clear understanding of the intent of the design,
    - 6.11.6.5.2. All limitations of the systems,
  - 6.11.6.6. Coordinate the dates of all training sessions with the Departmental Representative. Update the training plan as required reflecting the project schedule. The Departmental Representative will organize the meeting.
  - 6.11.6.7. The training plan shall recognize both short-term and long-term requirements.
  - 6.11.6.8. Upon completion, prepare a summary of the training sessions, indicating dates, subject matter, all training personnel and all trainees present and submit to the Departmental Representative.
- 6.11.7. Correction of Deficiencies
- 6.11.7.1. The Consultant, in consultation with the RCMP Department Representative, shall:
    - 6.11.7.1.1. Instruct the contractor to correct all the deficiencies identified and recorded during the performance verification,
    - 6.11.7.1.2. Provide solutions during the PV process with respect to the variances from the design parameters,
    - 6.11.7.1.3. Adjust or alter the systems to achieve the design parameters. This shall include re-testing,
    - 6.11.7.1.4. Immediately notify the Departmental Representative when tests fail to meet project requirements and when corrective work and re-tests affect construction and completion schedule,
    - 6.11.7.1.5. Report in writing to the Departmental Representative indicating compliance or anomalies regarding witnessed events. The Consultant is to investigate and recommend in writing any corrective actions to be taken to facilitate compliance with design intent and design criteria.
- 6.11.8. Commissioning Documentation
- 6.11.8.1. General
    - 6.11.8.1.1. Commissioning documentation is a complete set of data and information fully describing the completed project as a built, finished, functional and operational facility and presented in a form that can be maintained, updated and used over the life of the building.
    - 6.11.8.1.2. In preparing project-specific commissioning documentation, use all existing generic commissioning documentation to the maximum extent possible. However, the Consultant retains over-riding responsibility for the content of all project-specific commissioning documentation and for editing, amending and supplementing as required and as is appropriate for the project.
    - 6.11.8.1.3. Produce a report in accordance with the requirements of the PSPC Commissioning Manual (CP.1) in consultation with the RCMP as appropriate.
    - 6.11.8.1.4. Comply with all requirements contained in the RFP relating to electronic production of commissioning documentation.
  - 6.11.8.2. Details

- 6.11.8.2.1. Commissioning documentation shall include:
  - 6.11.8.2.1.1. The Commissioning Plan, the master planning document for all commissioning activities and deliverables, revised, refined, updated and reviewed at each stage of design development and re-submitted for review by the Commissioning Manager. Use the PSPC Model Commissioning Plan (see CP.3) as a reference model.
  - 6.11.8.2.1.2. The Building Management Manual, containing all documentation for the project and providing a complete "paper trail" relating to project delivery. Responsibilities for development and timing of delivery are described in CP.4: Guide to the development of Building Management Manuals.
  - 6.11.8.2.1.3. Commissioning specifications.
  - 6.11.8.2.1.4. For details of requirements, refer to CP.12 - Guide to the development and Use of Commissioning Specifications
  - 6.11.8.2.1.5. Commissioning Schedule
  - 6.11.8.2.1.6. The Commissioning Schedule is developed by the Contractor, outlining the performance testing program in an orderly sequence acceptable to the Commissioning Manager and the Consultant, the planned dates for submission of commissioning documentation. The Commissioning Schedule is a sub element to the construction schedule and is to be updated as required.
  - 6.11.8.2.1.7. Training Plans. Refer to CP.5 Guide to the preparation of Training Plans. For more details refer to relevant paragraph below.
  - 6.11.8.2.1.8. Installation Check Lists for use during pre-start-up and pre-commissioning inspections. Refer to CP.9 Guide to the development of Installation/Start-up Check Lists.
  - 6.11.8.2.1.9. Product Information (PI) report forms to document all details of equipment, components and systems. Refer to CP.10 Guide to the development of Report Forms and Schematics.
  - 6.11.8.2.1.10. Performance Verification (PV) report forms and include thereon all design criteria, design intents and other relevant design information. Refer to CP.10 Guide to the development of Report Forms and Schematics.
  - 6.11.8.2.1.11. MMS requirements, Apply to all drawings before Tender call. Refer to CP.13 Facility Maintenance Policy, Guidelines and Requirements. "As-built" drawings and specifications: to be completed prior to, and available for, pre-start-up inspections and to include:
    - 6.11.8.2.1.11.1. Amendments
    - 6.11.8.2.1.11.2. Project specifications amended by insertion of addenda, change notices,
    - 6.11.8.2.1.11.3. Flow diagrams and piping schematics as installed at each major item of equipment complete with valves controllers, identified with numbered tags.
  - 6.11.8.2.1.12. Occupants' comment / complaints audit system:
    - 6.11.8.2.1.12.1. Use during the Warranty period
  - 6.11.8.2.1.13. TAB and commissioning reports:
    - 6.11.8.2.1.13.1. Provide in accordance with CP.8: Guide to the preparation of Commissioning Reports.
  - 6.11.8.2.1.14. Final evaluation report:

6.11.8.2.1.14.1. Provide in accordance with CP.8: Guide to the preparation of Commissioning Reports.

#### 6.11.9. Commissioning Deliverables

##### 6.11.9.1. Conceptual Design Report:

6.11.9.1.1. From the commissioning perspective, the Conceptual Design Report shall include:

6.11.9.1.1.1. Description of the design describing the Design Criteria, Design Intent, the design philosophy, the rationale for system selection based on life cycle cost analysis, the functional and operational requirements and the conceptual framework for the operation and use of the proposed building, its components and systems, how the proposed design meets the RCMP's requirements, corporate and project objectives. To be updated at each stage of project development.

6.11.9.1.1.2. Design criteria, Design intents.

##### 6.11.9.1.2. O&M Report

6.11.9.1.2.1. From the commissioning perspective, the O&M Report to include:

6.11.9.1.2.1.1. O&M budget including projected utility consumption

6.11.9.1.2.1.2. Spatial requirements for O&M staff (office, lockers, kitchen, showers, washrooms, flow of people and supplies, storage for special tools, spare parts, and maintenance materials),

6.11.9.1.2.1.3. Cleaning requirements (janitor closets, receptacle for vacuum, equipment supply and storage),

6.11.9.1.2.1.4. Other O&M requirements. These shall include all requirements associated with O&M aspects including, but not necessarily limited to:

6.11.9.1.2.1.4.1. Operating standards and operator requirements,

6.11.9.1.2.1.4.2. Air Balancing report and performance verification of HVAC equipment,

6.11.9.1.2.1.4.3. Equipment and system reliability requirements,

6.11.9.1.2.1.4.4. Delivery, content and form of O&M documentation,

6.11.9.1.2.1.4.5. Tools, equipment, spare parts and maintenance materials,

6.11.9.1.2.1.4.6. Emergency procedures,

6.11.9.1.2.1.4.7. Identification and other similar needs,

6.11.9.1.2.1.4.8. Preventive maintenance tasks.

6.11.9.1.3. Further information may be obtained from CP.7: "Commissioning for Facility Management and Operation".

6.11.9.1.4. Comprehensive documentation, design information/data and comments so as to allow the Commissioning Specialist to:

6.11.9.1.4.1. Prepare service and staffing contracts,

6.11.9.1.4.2. Prepare a list of spare parts, special tools, maintenance materials and other special equipment to be provided by the Contractor,

6.11.9.1.5. Capacity of the facility to change in response to program changes over its life expectancy,

6.11.9.1.6. Requirements for operation and maintenance of the building over its life expectancy,

6.11.9.1.7. "Phased" construction program,

- 6.11.9.1.8. Assessment of staffing and skill requirements to operate and maintain the building,
- 6.11.9.1.9. Preliminary commissioning plan
- 6.11.9.1.10. Sample of PI/PV report forms and tracking software,
- 6.11.9.1.11. Preliminary building management manual,
- 6.11.9.1.12. Define project archives and how these archives will be managed, updated, and submitted at the end of the project.

6.11.9.2. 33% submission:

- 6.11.9.2.1. Extent of commissioning determined,
- 6.11.9.2.2. Factory and on-site tests of components, sub-systems, systems and integrated systems during construction, installation and commissioning determined,
- 6.11.9.2.3. Outline commissioning specifications using PSPC generic commissioning specifications plus outline project-specific commissioning specifications,
- 6.11.9.2.4. Updated Commissioning Plan,
- 6.11.9.2.5. Updated Building management manual,
- 6.11.9.2.6. Updated Design Intent Document,
- 6.11.9.2.7. Updated O&M Budget,
- 6.11.9.2.8. Outline PI and PV forms. Provide for all components, equipment and systems to be tested,
- 6.11.9.2.9. Maintenance Management System (MMS) codes identified for all equipment shown on the construction documents,
- 6.11.9.2.10. Preliminary Training Plan

6.11.9.3. 66% Submission:

- 6.11.9.3.1. Factory and on-site tests of components, sub-systems, systems and integrated systems during construction, installation and commissioning defined and detailed in commissioning specs,
- 6.11.9.3.2. Commissioning activities to be deferred to Operational Phase and Warranty Period identified,
- 6.11.9.3.3. Detailed commissioning specifications,
- 6.11.9.3.4. Updated Commissioning Plan,
- 6.11.9.3.5. Detailed Building management manual,
- 6.11.9.3.6. Updated Design Intent Document,
- 6.11.9.3.7. Updated O&M Budget,
- 6.11.9.3.8. Updated Training Plan,
- 6.11.9.3.9. Maintenance management system (MMS) codes identified for all equipment shown on the construction documents, schematics and line diagrams,
- 6.11.9.3.10. Complete PI and PV forms. Provide for all components, equipment and systems to be tested.

6.11.9.4. 99% Submission:

- 6.11.9.4.1. Commissioning specifications integrated into project specifications,
- 6.11.9.4.2. 90% Commissioning plan,
- 6.11.9.4.3. 90% complete Building management manual,
- 6.11.9.4.4. 90% Design Intent Document detailing each building system, including all engineering calculations,

- 6.11.9.4.5. Final O&M Budget,
- 6.11.9.4.6. Maintenance management System (MMS) codes identifiers shown on the construction documents and indicated on each PI and PV form,
- 6.11.9.4.7. 100% Training Plan, indicating scope and duration of training,
- 6.11.9.4.8. Design information added to PI forms

6.11.9.5. 100% Submission:

- 6.11.9.5.1. This submission incorporates all revisions required by the review of the 99% submission,
- 6.11.9.5.2. Updated Commissioning Plan, making it approx. 95% complete.
- 6.11.9.5.3. Update the Design Intent Document to reflect any changes from the 99% submission.

6.11.10. Construction and Commissioning

6.11.10.1. General

- 6.11.10.1.1. Upon Contract award, review and Update the PI and PV Forms, installation/start-up Check Lists, Commissioning Plan, Training Plan, commissioning specifications, and Commissioning Schedule to ensure relevance to construction changes to the work. Refer to CP.9 - Guide to the development of Installation/Start-up Check Lists, and CP.10 - Guide to the development of Report Forms and Schematics,
- 6.11.10.1.2. In consultation with the Contractor, review/select the test instruments to be used and instrument calibration,
- 6.11.10.1.3. Incorporate relevant data from approved shop drawings and installed component data immediately upon approval,
- 6.11.10.1.4. Review contractor's compliance with the contract documents,
- 6.11.10.1.5. Witness and certify tests, including those tests conducted before concealment and start up,
- 6.11.10.1.6. Verify that each system is completed, safe to operate and ready for start-up,
- 6.11.10.1.7. Review all test reports and take necessary action with Contractor when work fails to comply with contract,
- 6.11.10.1.8. Immediately notify Departmental Representative when tests fail to meet project requirements and when corrective work will affect schedule,
- 6.11.10.1.9. Ensure that all deficiencies are rectified and acknowledge that the installation of components and systems is ready for the commissioning phase,
- 6.11.10.1.10. Assist Departmental Representative in evaluating testing firm's invoices for services performed,
- 6.11.10.1.11. Review all maintenance management nomenclature, devices and submissions prepared by the contractor. Ensure on-site implementation and tagging of maintenance management.

6.11.10.2. Manuals and reports (Refer to CP.4 - Guide to the preparation of Building Management Manuals):

- 6.11.10.2.1.1. Four (4) weeks before training is due to commence, assemble, review and approve all commissioning documentation, including PV documentation, procedures and expected output.
- 6.11.10.2.1.2. In consultation with the Contractor, review/select the test instruments to



be used and instrument calibration.

6.11.10.2.1.3. Revise the Building management manual Document as construction progresses, ensuring that it reflects the installed systems (refer to CP.4 Guide to development of Building management manuals).

6.11.10.2.1.4. Finalize the Operating and Maintenance (O&M) Manual:

6.11.10.2.1.4.1. Verify, and certify, completeness, relevance and accuracy.

6.11.10.2.1.4.2. Produce two (2) hard copies and two (2) electronic copies and submit to the Departmental Representative prior to interim acceptance or implementation of Training Plan. The Contractor shall retain one copy of each volume for his record and for use during the implementation of the Training Plan (refer to CP.4 - Guide to the preparation of Building Management Manuals).

6.11.10.2.1.4.3. Ensure Contractor assembles all certified tests results and incorporates into the Maintenance manuals.

6.11.10.3. Training: Implement the Training Plan.

6.11.10.3.1. Submit the Training Plan to the Departmental Representative for review and comment at least two weeks prior to the proposed training dates. Update and resubmit as required. Include an agenda and a course outline summarizing the content and duration of training. The training provided must clearly relay:

6.11.10.3.1.1. An understanding of the intent of the design.

6.11.10.3.1.2. Limitations of the systems.

6.11.10.3.1.3. Reasons for the choice of systems.

6.11.10.3.2. Coordinate the date(s) of the training session(s) with the Departmental Representative.

6.11.10.3.2.1. Departmental Representative to organize the location and provide the lists of participants.

6.11.10.3.3. Prepare a summary of the training sessions. Indicate dates, subject matter, and all personnel present for training. After training, submit the training summary to the Departmental Representative.

6.11.10.3.4. Make necessary arrangement for site O&M staff familiarization during construction/ installation.

6.11.10.3.5. Consultant to provide training sessions on design intent and operational philosophy of each building system, including architectural systems, and the integrated building systems (all together). Utilize Operating Manuals, Maintenance Manuals and Design Intent Document for training sessions.

6.11.10.3.6. Contractor to provide training sessions on the operations and maintenance of components, equipment, sub-systems, systems and integrated systems.

6.11.10.3.6.1. Record the time, date and subject matter of training sessions as they occur. Indicate all those who are present at each training session.

6.11.10.4. Spare parts:

6.11.10.4.1. Finalize the delivery, inventory and storage of all specified spare parts, special tools, and maintenance materials.

6.11.10.5. Components, sub-systems, systems, and integrated system performance verification (PV)

- 6.11.10.5.1. Test all the components, subsystems, systems and integrated systems in accordance with the provisions of the contract documents. Ensure the work meets the design intent and requirements of ULC and TB Guidelines on Life Safety and Health. Witness, certify and approve all tests.
  - 6.11.10.5.2. Certify and date all PV procedures and test results.
  - 6.11.10.5.3. Report in writing to the Departmental Representative indicating compliance or anomalies regarding witnessed events. The Consultant is to investigate and recommend in writing any corrective actions to be taken to facilitate compliance with design intent and design criteria.
  - 6.11.10.5.4. Provide solutions during the PV process with respect to the variances from the design parameters.
  - 6.11.10.5.5. In consultation with the Departmental Representative, instruct the contractors to rectify all deficiencies identified and recorded during the performance verification and adjust or alter the systems to achieve the design parameters. Re-test to verify compliance.
  - 6.11.10.5.6. In consultation with the Departmental Representative, recommend takeover of the facility subject to performance of PV and commissioning which were previously agreed to be deferred until the operational phase.
  - 6.11.10.5.7. Prior to Interim Inspection, debrief the Departmental Representative on the commissioning process including training; problems; required changes to systems (with costs) which are outside the contractor's responsibility, but which are deemed necessary to meet project requirements; commissioning procedures and other information, experiences and suggestions for future projects. Repeat this process when 80% occupancy is achieved.
- 6.11.10.6. Design Intent Document and Building Operational and Maintenance Manual:
- 6.11.10.6.1. Immediately prior to the issuance of the Interim Certificate of Acceptance finalize the Building Operational and Maintenance Manual and Design Intent Document to reflect the final as-built works. Reflect all changes, modifications, revisions and adjustments. This may include the incorporation of reports such as the Area Measurement and Space Usage Report, and the Fire Protection Manual.

## **6.12. ESTIMATING AND COST PLANNING**

### **6.12.1. Cost Specialist**

- 6.12.1.1. Break out pricing for cost estimation specialist.
- 6.12.1.2. A fully qualified cost estimating, cost planning and cost control individual or team, referred to herein as the Cost Specialist, with a demonstrated record of successful cost management on large construction projects is required. This Cost Specialist will be conversant with all aspects of construction cost estimating during the design stages including the use of Elemental Cost Analysis, Risk Analysis, Life Cycle Costing and Value Engineering/Management techniques.
- 6.12.1.3. The purpose of cost planning and cost control is to assist in the accomplishment of project cost objectives. It is a continuous and interactive process involving planning, action, measurement, evaluation and revision.

### **6.12.2. Scope of Services**

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

6.12.2.2. The Consultant's Cost Specialist shall attend key project meetings as requested throughout the design phases and be prepared to present and defend the estimates directly to the Departmental Representative.

#### 6.12.3. Services – Basic Activities

6.12.3.1. The Consultant's Cost Specialist shall work with and advise the Consultant Team and the RCMP on the costs of individual building components and costs of various design systems. Estimates should be prepared in detail and summarized using an Elemental Analysis format. Acceptable formats are noted under the Submission Standards section (Section 6.12.5) below.

#### 6.12.4. Reporting

##### 6.12.4.1. Milestone Reporting:

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

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

6.12.4.1.3. A typical Milestone Report will contain:

6.12.4.1.3.1. Project Estimate Summary;

6.12.4.1.3.2. Elemental Estimate Summary;

6.12.4.1.3.3. Estimate Back-Up Detail;

6.12.4.1.3.4. Basis for escalation, inflation and contingency calculations;

6.12.4.1.3.5. Detailed measurement and pricing;

6.12.4.1.4. Narrative:

6.12.4.1.4.1. Outline description of estimate basis;

6.12.4.1.4.2. Description of information obtained and used in the estimate including the date received;

6.12.4.1.4.3. Listing of notable inclusions;

6.12.4.1.4.4. Listing of notable exclusions; listing of items/issues carrying significant risk;

6.12.4.1.4.5. Notes on past and forecast Cost Specialist activity;

6.12.4.1.5. Estimate Reconciliation:

6.12.4.1.5.1. With last submission;

6.12.4.1.5.2. With Construction Cost Plan;

6.12.4.1.6. Any other relevant information.

##### 6.12.4.2. Exception Report

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

- 6.12.4.2.2. If the estimate falls short of or exceeds the Construction Cost Plan due to such changes, the Cost Specialist with the Consultant Team shall fully advise the Departmental Representative.
- 6.12.4.2.3. The Cost Specialist with the Consultant Team shall submit to the RCMP proposed alternative design solutions and revise the most recent monthly estimate.
- 6.12.4.2.4. An Exception Report will include sufficient description and cost detail to clearly identify:
  - 6.12.4.2.4.1. Scope Change: Identifying the nature, reason and total cost impact of all identified and potential project scope changes affecting Construction Cost Estimate.
  - 6.12.4.2.4.2. Cost Over-runs and Under-runs: Identifying the nature, the reason and the total cost impact of all identified and potential cost variations.
  - 6.12.4.2.4.3. Options Enabling a Return to Construction Cost Estimate: Identifying the nature and potential cost effects of all identified options proposed to return the project within Construction Cost Estimate.

#### 6.12.5. Submission Standards

##### 6.12.5.1. Summary Format:

- 6.12.5.1.1. Elemental Analysis: All estimates shall be summarized in an agreed and consistent Elemental format. Several variations in format may be acceptable to the RCMP (by discussion) but those following the ASTM (USA), CIQS (CDN), CSI Uniformat II (USA) or BCIS (UK) formats are preferred.
- 6.12.5.1.2. Trade Summary: Where a trade summary is required, those following the Master format are preferred, except where local practice provides a more suitable alternative.
- 6.12.5.1.3. Project Cost Subdivision: The estimate shall isolate the costs of each phase of construction. All estimates within these phases shall further isolate and show separately the cost of individual building blocks and/or the accommodation sections listed here:
  - 6.12.5.1.3.1. New Construction including Base building and fit-up;
  - 6.12.5.1.3.2. Furniture and equipment
  - 6.12.5.1.3.3. IT and Security system infrastructure
  - 6.12.5.1.3.4. IT and Security system cabling
  - 6.12.5.1.3.5. Site work including civil works, utilities, road works and landscaping

##### 6.12.5.2. Deliverables

- 6.12.5.2.1. Provide one (1) hard copy of the full report including the additional estimate support information to the RCMP.
- 6.12.5.2.2. One electronic copy of the full report including, summary and support detail.

##### 6.12.5.3. Time lag

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

##### 6.12.5.4. Use of all available information:

- 6.12.5.4.1. The Cost Specialist is responsible for providing a complete cost estimate even though the information provided during the concept, design development and early working

drawing stages is incomplete.

6.12.5.4.2. Where requirements are not firmly defined, the Cost Specialist shall make assumptions, confirm them with the Consultant and either list them as assumptions, or have them incorporated in an outline specification modified by the Consultant.

#### 6.12.6. Services – Specific Activities

##### 6.12.6.1. Project Analysis Stage

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

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

##### 6.12.6.2. Concept Design

6.12.6.2.1. An updated Class "D" estimate will be prepared at the highest level of detail commensurate with the available information using elemental and additional detailed costs.

##### 6.12.6.3. Design Development

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

6.12.6.3.2. Upon final acceptance, the Class "C" estimate shall become the Construction Cost Plan.

##### 6.12.6.4. Contract Documents

6.12.6.4.1. During the production of the contract documents a process of continuing cost control progressively more detailed is required. At each review of contract documents, an up-to-date estimate shall demonstrate compliance with the Construction Cost Plan. Non-compliance with the Construction Cost Plan will require revisions to the contract documents.

6.12.6.4.2. Provide a Class "B" estimate with the 66% construction document submission.

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

##### 6.12.6.5. Pre-Tender

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

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

6.12.6.5.3. Upon acceptance, the Class "A" estimate shall become the Construction Cost Plan.

##### 6.12.6.6. Tender Stage

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

6.12.6.6.2. **Bid Review and Analysis** Assist the Departmental Representative, as required, by analyzing and reconciling any differences between the pre-tender estimate and the submitted bids.

6.12.6.6.3. **Negotiation** Should it be necessary to negotiate with any bidder prior to awarding the Contract, the Cost Specialist shall provide cost information as needed and provide

advice during negotiations if requested.

6.12.6.6.4. **Reconciliation** Upon the signing of a contract with the successful Contractor, the Cost Specialist will reconcile both the elemental and trade estimates, in detail, with the agreed contract sum. These reconciled estimates will be used by the Construction Team during the construction phase of the project.

6.12.6.7. Cost Specialist Services through Construction

6.12.6.7.1. During construction, the Cost Specialist shall assist the Construction Team with cost advice.

6.12.6.7.2. Such activity may encompass the following activities:

6.12.6.7.2.1. Evaluation of change orders;

6.12.6.7.2.2. Evaluation of claims;

6.12.6.7.2.3. Evaluation of work completed;

6.12.6.7.2.4. Evaluation of cash flow.

6.12.6.7.3. Post Contract

6.12.6.7.3.1. The Cost Specialist may be required to assist with the provision of details needed for an evaluation of the project, regarding the Project's cost performance.

6.12.6.7.3.2. If required, this work will be paid for on an agreed, negotiated basis.

6.12.7. Responsibilities of the RCMP

6.12.7.1. The RCMP will review all aspects of the Cost Specialist's work on a continuing basis to determine the validity and completeness of the information provided. In the event the RCMP may identify areas of concern including errors and omissions, as well as areas of inadequate detail or areas that require further explanation, the Cost Specialist shall re-examine the estimates provided and make such revisions as are subsequently agreed to be necessary and/or provide ample acceptable evidence that such corrections or amendments are unnecessary.

6.12.7.1.1. No acceptance or approval by the RCMP, whether expressed or implied shall be deemed to relieve the Cost Specialist, or the Consultant, of professional or technical responsibility for the estimates and cost reports.

6.12.7.1.2. Acceptance of an estimate by the RCMP does not in any way abrogate the Consultant's responsibility to maintain the agreed Construction Cost Plan throughout the life of the project, or the requirement to redesign should the lowest acceptable bid differ significantly (10%) from the agreed Construction Cost Plan, unless and until the Departmental Representative indicates otherwise in writing.

## **6.13. POST CONSTRUCTION SERVICES**

### **6.13.1. General**

6.13.1.1. The Consultant shall perform the following services, in accordance with the terms and conditions of the Agreement and all requirements of this RFP.

6.13.1.1.1. Ten-Month Warranty Inspection and final Warranty Inspection.

6.13.1.1.1.1. Produce a Warranty Inspection report with findings and recommendations.

6.13.1.1.1.2. Participate in post-project debriefs with the RCMP Departmental Representative for the purposes of learning and betterment.