



## Appendix A – Project Brief

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# Dease Lake Detachment / Renovation and Expansion

## A&E Services

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### Document History

Version	Date	Author	Summary of Changes
1.0	Sept 16, 2019	Mongrain P-L.	Initial Draft
2.0	Oct 29, 2019	Averill, Sean	Peer Review
3.0	Nov 1 <sup>st</sup> , 2019	Mongrain, P-L	Final Review



# Project Brief

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# PROJECT DESCRIPTION

## PD 1 PROJECT INFORMATION

### PD 1.1 SERVICES

- 1.1.1 Royal Canadian Mounted Police (RCMP) requires the services of an architectural firm (the “Consultant”) together with a multi-disciplinary team of sub-consultants for the provision of service required for the renovation and expansion of the RCMP Dease Lake Detachment located in Dease Lake, BC.

### PD 1.2 THE GENERAL REQUIREMENTS, SPECIFICATIONS, PROCEDURES & STANDARDS DOCUMENT (GRSP&S)

- 1.2.1 The GRSP&S document (Attachment 1 to this appendix) forms part of the Project Brief.
- 1.2.2 The Project Brief describes project specific requirements, services and deliverables while the GRSP&S document outlines general requirements, specifications, minimum standards, and procedures common to all projects.
- 1.2.3 In the case of a conflict between the two documents, the requirements of the Project Brief override the GRSP&S document.

### PD 1.3 GENERAL

- 1.3.1 Project Title: Dease Lake Detachment, Renovation and Expansion
- 1.3.2 Location of the Project: Dease Lake, BC, Canada
- 1.3.3 Civic address: 50, Boulder Avenue, V0C 1L0

## PD 2 PROJECT INTRODUCTION AND BACKGROUND

### PD 2.1 GENERAL

- 2.1.1 The services are required for the Dease Lake Detachment. Services outlined within the terms of reference are to be applied to the project.

### PD 2.2 DEASE LAKE OVERVIEW

- 2.2.1 The services of a Consultant, are required to undertake the design, tender and construction contract administration / review services needed to renovate and expand an existing detachment in Dease Lake, British Columbia.
- 2.2.2 The project consists of design and construction of an existing police detachment facility to meet the RCMP’s program requirements. Services will include site options analysis. The Consultant team must analyse the area and existing building to integrate the expansion and meet the requirement detailed in the project brief. RCMP space analysis indicates a detachment space requirement of 744 Gm<sup>2</sup>, which includes a Fentanyl Fume Hood Room (9.5 Gm<sup>2</sup>) that is a new



national safety requirement for detachments for the safe handling of unknown substances. 81. Gm2 of additional space has been added for anticipated future functional space requirement. The final detachment space requirement after taking into consideration all of the above additions is 821 Gm2 of which 514 Gm2 will be new additional space and 307 Gm2 will be partially renovated current space.

- 2.2.3 The Consultant will provide a full Consultant Team including the required expertise in civil, structural, mechanical, electrical, landscape architecture, project costing, scheduling, building code analyst, and commissioning specialist.

### **PD 2.3 USER DEPARTMENT**

- 2.3.1 The User Department, referred to throughout the Project Brief, is:  
.1 The Royal Canadian Mounted Police (RCMP)

### **PD 2.4 DEASE LAKE SITE CONDITIONS**

- 2.4.1 The main characteristics of the site:
- .1 Facility will be constructed on existing RCMP land and attached to the existing building.
  - .2 The actual Dease Lake detachment is operational and must remain functional during design and construction phases.
  - .3 Site plan, topography survey and geotechnical to be provided by the Departmental Representative per section PD12.

### **PD 2.5 DEASE LAKE CONSTRAINTS AND CHALLENGES**

- 2.5.1 The Consultant must become familiar with the project site and obtain local information as required.
- 2.5.2 All site visits must be arranged through the Departmental Representative.
- 2.5.3 The Consultant must obtain security clearances for all his/her firm's personnel as well as any sub-consultants to visit the project site for reasons, such as, site reviews, attendance for site design meetings, etc. Security clearance checks may include credit checks.
- 2.5.4 An absolute consideration must be ease of maintenance and easy access to parts for repair of equipment and systems installed in the facilities. Equally important is the reduction of ongoing Operations and Maintenance costs.
- 2.5.5 Incorporate sustainable design principles to achieve compliance with 2015 National Energy Code of Canada of Buildings (NECB). Design shall utilize the Energy performance compliance path as defined in the 2015 NECB and document compliance.
- 2.5.6 Delivering the construction portion of the project to meet all requirements within a \$6.25M(GST excluded) construction estimate. 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.
- 2.5.7 Aggressive project schedule for design (8 months).
- 2.5.8 Defining long lead times for materials, timely reviews of shop drawings and timely responses to contractor questions must be priorities to ensue no schedule delays occur.



- 2.5.9 Incorporate design principles to achieve equivalency to LEED Gold standards. (Note: Submission for Certification will not occur).
- 2.5.10 Dease lake detachment is one of the most northern RCMP detachments in British Columbia and is considered to be remote due to its location. There is a local airport close to the detachment and 2 motel<sup>s</sup> with heavy traffic during summer.

## PD 3 PROJECT OBJECTIVES

### PD 3.1 OBJECTIVE ONE: FUNCTIONAL PERFORMANCE

- 3.1.1 Provide a design to deliver a facility in the community of Dease Lake that responds to the operational and functional requirements of the RCMP.

Estimated Space Summary:

Dease Lake Detachment space requirement	
Usage	SQ Meters (approx. +/-)
Public Access (Reception, Vestibules, etc)	24
Office Area	58
General Support Area	198
Operational Support Area	131
Secure Area	136
<b>Subtotal of Basic space</b>	<b>547</b>
+24% Interior divisions / walls and circulation areas	131
+10% Service / Common Areas and Structure	68
+10% Major vertical penetrations and exteriors walls	75
<b>Total Gross Space</b>	<b>821</b>

- 3.1.2 Achieve:
  - .1 A design that provides functional, responsive and efficient workspace in keeping with the functional programs, the RCMP and Treasury Board standards.
  - .2 Healthy and safe working environments that fully support optimum work productivity.
  - .3 Effective and continuous physical security for the occupants in the conduct of their daily business.
  - .4 Integration of RCMP systems for Security and Information Services with project requirements.
  - .5 Easy to use and adaptable systems and technologies to support requirements with capacity for growth and change.
  - .6 Effective and efficient office furniture plan, utilizing approved suppliers from the Government of Canada's National Supply Arrangement, fully coordinated with the Mechanical and Electrical disciplines.
  - .7 A facility that is designed in a manner that will allow for simple future expansion to the administration and detention portions of the facility.



### **PD 3.2 OBJECTIVE TWO: DESIGN QUALITY AND CHARACTER**

3.2.1 Provide design that will effectively and appropriately serve the RCMP and its operations for an expected life span of 30 years before major refit.

3.2.2 Achieve:

- .1 Design excellence, use of quality materials and precise execution respecting the geography, geology and climate where these facilities will be located.
- .2 A design that will reflect the importance and the nature of the functions it serves and fits within the surrounding environment.
- .3 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.
- .4 A building extension and renovation that reflects elements of the landscape and community.
- .5 A fully integrated design.

### **PD 3.3 OBJECTIVE THREE: BUILDING PERFORMANCE**

3.3.1 Provide a building and building systems that will enable long-term efficient and cost effective life cycle performance.

3.3.2 Achieve:

- .1 A building that embodies contemporary sustainable design and application principles and is implemented in an environmentally responsible manner,
- .2 Follow the principles of LEED Gold standards.
- .3 Compliance with the NEBC 2015. Design shall utilize the Energy performance compliance path as defined in the 2015 NECB and document compliance.
- .4 Healthy and safe environments that meet or exceed all applicable codes for construction, fire, health, and life safety.
- .5 A building that fully integrates all components and systems (architectural, structural, mechanical, electrical, range equipment, IT, multimedia, security, and furniture).
- .6 Building fabric 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.
- .7 Systems that can be accessed and easily repaired and / or replaced in the building life cycle as required.



## **PD 3.4 OBJECTIVE FOUR: PROJECT DELIVERY**

3.4.1 Deliver the project utilizing best practices in support of the RCMP's needs, respecting the approved scope, quality, financial budget and schedule.

3.4.2 Achieve:

- .1 A cohesive functional partnership and open communication between all members of the project delivery team and stakeholders throughout all phases of project delivery.
- .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.
- .3 Rigorous quality assurance reviews during the design and construction phases, conducted as an integral element of the design process for all major disciplines,
- .4 A rigorous quality management plan in order to respond and correct, in a timely and effective manner, all issues as they occur.
- .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 a continuity of key personnel working as an integrated dedicated team for the full duration of the project.
- .6 Professional conduct in all phases of the project, employing best practices for budget, schedule, quality, and scope management.
- .7 A continuous risk identification and management program employing effective methodologies to avoid unexpected project impacts, and to ensure construction claims avoidance.
- .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.





## **PD 4 SCOPE OF WORK**

### **PD 4.1 OVERVIEW- ALL DISCIPLINES**

- .1 Provide a comprehensive professional service 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.
- .2 Ensure integration of RCMP user systems and requirements during all phases of the project.
- .3 Maintain consistency and continuity of the multidisciplinary team throughout all project phases.

### **PD 4.2 PHASE 1- PROJECT ANALYSIS AND SCHEMATIC DESIGN**

- .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. Phase 1 covers the services described in RS1 and RS2.
- .2 Review and summarize functional requirements, including occupancy and roles, facility requirements and room data sheets.
- .3 Review and summarize options and approach for design, integration and procurement process for acquisition and installation of all RCMP BCC elements.
- .4 Review the site, seeking options for placement of the new extension and provide for consideration to the RCMP.
- .5 Provide 3 conceptual designs for consideration by the RCMP for the provision of a new extension, ensuring optimal use of the site, space utilization efficiency and integration of security requirements, and compliance with Authorities having jurisdiction.
- .6 Summarize options in a Project Design Brief complete with functional program, key features, opportunities, constraints, risks and estimated construction budgets.
- .7 Present schematic options and Design Brief for review and approval by RCMP.
- .8 During the project analysis stage, the consultant services must evaluate and propose options for site development. Which will include but not limited to a review of site services, grading, environmental impacts, cost comparisons between site options etc.
- .9 Develop final schematic design, based on RCMP selected concept and comments and submit for sign off.

### **PD 4.3 PHASE 2 - DESIGN DEVELOPMENT**

- .1 Develop the preferred design based on the approved schematic from Phase I.
- .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 Update project budget, schedule, and risk plan based on outcome of design development phase.
- .4 Submit updated project brief and supporting documentation for RCMP review and approval.
- .5 Finalize Design Development phase based on RCMP approval and comments and submit for sign off.

### **PD 4.4 PHASE 3 - CONSTRUCTION DOCUMENTS**

- .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.
- .2 Prepare and provide documentation for RCMP reviews and approvals at 33%, 66%, 99% and tender ready stages of construction document production.
  - .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.
  - .4 Proceeding to tender with planned addenda or incomplete documentation will not be acceptable.

#### **PD 4.5 PHASE 4 –TENDER CALL AND BID EVALUATION**

- .1 Coordinate with the Departmental Representative in the development of tender documents.
- .2 Attend on-site job showing for construction contract bidders.
- .3 Record all questions received during job showing.
- .4 Review all queries received during tender period and provide responses and or addenda as may be required.
- .5 Assists the Department Representative and the General Contractor 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%.

#### **PD 4.6 PHASE 5 – CONSTRUCTION CONTRACT ADMINISTRATION**

- .1 Periodic construction reviews for conformance to contract documents and contract administration, including provision of site review reports, evaluation and certification of construction progress claims.
- .2 Lead bi-weekly meeting by conference call.
- .3 Include the following on-site visit to the proposal and provide the cost for each key consultant additional visit.
  - .1 Four (4) visits from architect in accordance to .1 from PD 4.6
  - .2 Two (2) visits from electrical engineering in accordance to .1 from PD 4.6
  - .3 Two (2) visits from mechanical engineering in accordance to .1 from PD 4.6
  - .4 One (1) visit from civil engineering in accordance to .1 from PD 4.6
  - .5 One (1) visit from structural engineering in accordance to .1 from PD 4.6
  - .6 One (1) visit from commissioning services in accordance to .1 from PD 4.6
- .4 Review and responds to Requests for Information (RFI's), prepare draft Site Instructions, draft Change Directives, draft Contemplated Change Orders, and draft Change orders for review and issue by the Contract Authority.
- .5 Review and evaluation of Contractors change proposals and claims.
- .6 Review and evaluation of changes to construction schedule.
- .7 Updates to and monitoring of Project Risk Plan.
- .8 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.
- .9 Attendance as required by key Sub-Consultants at special project meetings when required in response to specific technical issues as they arise.
- .10 Site reviews, documentation and evaluation of contract deficiencies.

#### **PD 4.7 PHASE 6 – POST CONSTRUCTION SERVICES (RCMP BUILDING COMPONENTS AND CONNECTIVITY (BCC))**

- .1 Attendance at all regularly scheduled project meetings (assuming minimum bi-weekly meetings by phone) by representatives of each key Consultant discipline relevant for the phase of the work.



- .2 Follow up on completion of base building deficiencies in support of Total Completion.
- .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.
- .4 Review and respond 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 Orders, and draft Change orders for review and issue by the Contract Authority to allow for integration and installation of RCMP BCC with base building contract requirements.

#### **PD 4.8 PHASE 7 - COMMISSIONING**

- .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> and the GP&S document.
- .2 Ensure commissioning requirements have been incorporated into appropriate sections of the project specifications prior to tender.
- .3 Monitor and document all commissioning activities as required.
- .4 Conduct final site reviews and provide certifications for Final Completion.

#### **PD 4.9 PHASE 8 - WARRANTY SERVICES**

- .1 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.
- .2 Attend meetings as required with affected contractors, or subcontractors to review requirements for corrective action.
- .3 Review and document contractor follow up to warranty related corrective work.

#### **PD 4.10 ARCHITECTURAL SERVICES**

- 4.10.1 Comprehensive professional design services to provide renovation and extension of Dease Lake Detachment in response to the operational requirements estimated on a renovation of the existing floor plan (307m<sup>2</sup>) and an extension of approximately 514 m<sup>2</sup>, and delivered within a preliminary construction estimate of \$6.25M.
- 4.10.2 Analysis design and delivery approach of modular vs on site construction to consider cost, logistics, schedule and other any other benefits or disadvantages of either options.
- 4.10.3 Coordination of all professional services as required to deliver an integrated comprehensive design solution.
- 4.10.4 Comprehensive interior design services, including layouts, systems furniture coordination, finishes, acoustic treatment/systems design, and built- in furnishings as required.
- 4.10.5 Specific design and specification of locking hardware and physical security systems in compliance with RCMP standards.
- 4.10.6 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, Government of British Columbia, First Nations, RCMP Fire Marshall, and Environment Canada, local and provincial



authorities.

### **PD 4.11 CIVIL ENGINEERING SERVICES**

- 4.11.1 All services required to design and construct required site utility services including but not limited to power, fuel, water, storm and sanitary sewers, and utility infrastructure in support of business continuity requirements including emergency power systems.
- 4.11.2 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.
- 4.11.3 Coordinate with geotechnical investigation and site survey provided by RCMP

### **PD 4.12 STRUCTURAL ENGINEERING SERVICES**

- 4.12.1 Comprehensive structural engineering services to design all applicable structural elements to current construction standards, as defined by applicable building codes.
- 4.12.2 Exterior elements in support of business continuity infrastructure components and site development;

### **PD 4.13 MECHANICAL ENGINEERING SERVICES**

- 4.13.1 Comprehensive mechanical engineering services to design all applicable mechanical systems for the operation of an existing facility and an extension including systems in support of business continuity.
- 4.13.2 All documentation required from all applicable authorities having jurisdiction for provincial and federal environmental and technical approvals.
- 4.13.3 Preparation of submissions to all authorities having jurisdiction and liaison as required to achieve approvals.
- 4.13.4 Specific site review services as required to provide stamped record drawings of fuel storage and delivery system to confirm conformity with Environment Canada regulations.

### **PD 4.14 ELECTRICAL ENGINEERING SERVICES**

- 4.14.1 Comprehensive electrical engineering services to design all applicable electrical systems for the operation of an existing facility including systems in support of business continuity.
- 4.14.2 Specialty electrical engineering services 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 PD5.
- 4.14.3 Coordination with third party suppliers for integration of RCMP procured proprietary systems for audio-visual, information network, and security systems.
- 4.14.4 Specialty interior lighting design including general and task lighting to suit user requirements as per functional program.
- 4.14.5 Exterior site lighting.



- 4.14.6 Security systems infrastructure.
- 4.14.7 Specific site review services as required to provide stamped record drawings of fuel storage and delivery system to confirm conformity with Environment Canada regulations.

### **PD 4.15 COMMISSIONING SERVICES**

- 4.15.1 Preparation of comprehensive documentation to define requirements for complete building systems.
- 4.15.2 All commissioning activities as required to design, check and verify that all building systems are functioning to the design specifications.
- 4.15.3 Review, verification and documentation of all contracted commissioning activities.

### **PD 4.16 PROJECT MONITORING AND CONTROL SERVICES**

- 4.16.1 Preparation of comprehensive construction cost estimates at appropriate levels (D, C, B and A) for the stage of the project.
- 4.16.2 Preparation of estimates of Operating, maintenance and life cycle costs in conjunction with considerations of alternate building systems in the context of Value Engineering.
- 4.16.3 Provision of analysis of tender costs and recommendations of reasonableness.
- 4.16.4 Provision of analysis of submitted proposed change costs and schedule impacts and recommendations of reasonableness.
- 4.16.5 Provision of Project schedule and monitoring/updating of project schedule from baseline.
- 4.16.6 Provision of a Risk Management plan, monitoring and updating of same.

## **PD 5 BUILDING COMPONENTS AND CONNECTIVITY (BCC)**

### **PD 5.1 GENERAL**

- 5.1.1 The project mandate includes implementation of the Building Components and Connectivity (BCC) program. The objective of the BCC program is to meet the operational requirements of the RCMP to allow immediate occupancy of the space. Building components means building fixtures, furnishings and equipment. 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 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.
- 5.1.2 BCC Components include acquisition of the following:
  - .1 Commercially available furniture.
  - .2 Specialty operational workstations, consoles, and technical workstation furnishings.
  - .3 Purpose-Built or manufactured furniture and shelving.
  - .4 LAN server room racks and equipment.



- .5 Audio Visual equipment and systems.
- .6 Collaborative area seating.
- .7 Seating and task chairs.
- .8 Task Lighting.
- .9 Art and Artefacts.
- .10 Kitchenette Food Service Equipment (refrigerators, microwaves, dishwashers).
- .11 Police Radio System tower and Antennae/Whips.
- .12 Security Systems Equipment, including access control, intrusion detection and CCVE systems and systems specialty cabling as specified by RCMP.
- .13 Specialty door hardware and locking systems.
- .14 Health and Safety Equipment.
- .15 Signage and way-finding systems.
  - 5.1.3 BCC Components do not include the following:
    - .1 Office equipment related to administrative functions such as: computers, printers, fax machines, or phone sets,
  - 5.1.4 BCC Connectivity includes the following components or systems:
    - .1 Infrastructure and conduit, tray, raceway systems and end device boxes, designed, supplied and installed under the general contract.
    - .2 Specialty information system and secure network cabling and terminations (comprehensive for all systems)
    - .3 Integrated Security System,
    - .4 Closed circuit video surveillance system,
    - .5 IT Network cabling and WIFI,
    - .6 Telephony,
    - .7 Entry systems,
    - .8 Multimedia and AV systems,
    - .9 Police Radio System Antennae/Whips,
    - .10 Integrated Digital Building Management System, designed, supplied and installed under the general contract.
    - .11 Integrated Fire Alarm Monitoring System, designed, supplied and installed under the general contract.

## **PD 5.2 SCOPE OF BCC COORDINATION AND DESIGN SERVICES FOR THIS PROJECT**

- 5.2.1 For this project, BCC is divided into functional groups as follows:
  - .1 Information and Network systems,
  - .2 Security systems,
  - .3 Fixtures, Furniture and Equipment,
  - .4 Police Radio System
- 5.2.2 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.
- 5.2.3 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.
- 5.2.4 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.
- 5.2.5 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.
- 5.2.6 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.
- 5.2.7 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.

## PD 6 PROJECT DELIVERY APPROACH

### PD 6.1 GENERAL

- 6.1.1 This project will use a Design-Bid-Build approach for construction.
- 6.1.2 It is anticipated that multiple tender packages could be required for this project.
- 6.1.3 The Consultant shall prepare the tender packages and in coordination with the Department Representative to ensure full co-ordination of the work of all disciplines and sequences of construction.
- 6.1.4 The Consultant engaged through this RFP by the RCMP will provide the services required under the general direction of the RCMP Project Manager and will coordinate all design, and construction contract administration activities based on formal direction from the RCMP Departmental representative as delegated.

## PD 7 SCHEDULE

### PD 7.1 GENERAL

- 7.1.1 Deliver the project to be ready for occupancy in accordance with the project milestone target periods as identified below.

**Stage Durations**

Award of Consultant Contract	Milestone
Security Clearances Processing	3 months
Design Startup	Milestone
Pre Analysis / Schematic Design	
Design Development	
33% Construction Documents	
66% Construction Documents	
99% Construction Documents	
Tender Ready Construction Documents	8 Months
Contractor Security clearances complete	1 to 3 Months



Construction start	Milestone
Substantial Completion- base building	12 Months
BCC / FFE and Tenant installations/Commissioning	1 Months
Occupancy and start up	Milestone
Post Warranty / Closeout	12 Months

7.1.2 Prepare a detailed network diagram using commercially available software, in accordance with the above milestone listing, for review as part of the deliverables identified in the Required Services (RS) Section.

## PD 8 COST

8.1.1 The estimated preliminary construction cost estimate (Class D) (Base building) in current dollars (excluding GST), at this time, is as follows:

.1 Dease Lake Construction Cost \$6,25 Million

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8.1.2 Cost estimates do not include Project Management fees, administration costs, building permit, Consultant fees, or GST.

8.1.3 A construction estimate of \$6.25 has been identified above. 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.

8.1.4 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.

## PD 9 SUSTAINABLE DEVELOPMENT

### PD 9.1 OVERVIEW

9.1.1 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. The general areas of focus and in accordance with LEEDv4, 2015 National Energy Code of Canada for buildings, ASHRAE 90.1 and C2000 standards include:

- .1 Energy efficiency and conservation.
- .2 Greenhouse gas emissions reduction.
- .3 Water management and conservation.
- .4 Pollution prevention.
- .5 Product selection and resource conservation.
- .6 Indoor environmental quality (thermal, air, and lighting quality).
- .7 Site conservation (protection and preservation of valued natural site features).





- .8 Measurement and Verification to provide an ongoing accountability of energy and building services consumption over time.
  - .9 Environmentally friendly maintenance procedures and products.
- 9.1.2 Energy modeling report will be required in accordance with NECB 2015 following the performance path demonstrating compliance with NECB 2015
- 9.1.3 For this project, a solid waste management program must be implemented for all construction phases. Service requirements for Sustainable Development are identified in the Required Services (RS) Section.

## **PD 9.2 DESIGN GUIDELINES FOR SUSTAINABLE DEVELOPMENT**

- 9.2.1 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>

## **PD 10 DESIGN QUALITY**

### **PD 10.1 PEER REVIEWS**

- 10.1.1 The Consultant is responsible for controlling quality throughout the life of the project. As part of the design quality assurance process the Consultant will be responsible for coordinating Peer Reviews for each discipline.
- 10.1.2 Peer Reviews will be completed by all disciplines/stakeholders and documented with follow up responses for each design submission.
- 10.1.3 Submit summary documentation of Peer Reviews for review by the RCMP with each stage report.

### **PD 10.2 RISK MANAGEMENT**

- 10.2.1 A risk management strategy is crucial for the RCMP Project Management system and integrates project planning into procurement planning. All the stakeholders of a project will be an integral part of the risk management strategy. Service standards required for project delivery are outlined in available PSPC publications. *Reference link:*  
<http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/conn-know/risque-risk/index-eng.html>



## PD 11 CONSULTANT TEAM

### PD 11.1 GENERAL

- 11.1.1 The Consultant Team must 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, Landscape Architect, and Commissioning Specialist.
- 11.1.2 The Consultant shall be responsible to co-ordinate and direct all Consultant Team activities.
- 11.1.3 The Consultant Team shall be comprised of competent and qualified personnel having professional and technical expertise with extensive relevant experience, and shall be capable of providing the services identified in the Required Services (RS) Section of this Project Brief.
  - .1 Members of the Consultant Team may have the necessary qualifications and expertise to provide services in more than one discipline or specialty
  - .2 Consultant are permitted to expand their Consultant Team to include additional disciplines as required, in order to successfully deliver the project.
- 11.1.4 Expertise and relevant experience requirements for this project are as follows:
  - .1 Administrative
    - .1 Project Management
    - .2 Scheduling
    - .3 Risk Management
    - .4 Cost consulting
  - .2 Regulatory Analysis, Planning, Design, and Development
    - .1 Building Code
    - .2 Municipal Zoning
    - .3 Occupational Health and Safety
    - .4 Fire and Life Safety
  - .3 Program Analysis, Planning, Design, and Development
    - .1 Enriched front end planning
    - .2 Functional Programming
  - .4 Site Analysis, Planning, Design, and Development
    - .1 Site Planning
    - .2 Landscape Architecture
    - .3 Civil Engineering / Municipal Engineering (infrastructure)
  - .5 Building Analysis, Planning, Design, and Development
  - .6 Architecture and Specialties:
    - .1 General Architecture
    - .2 Interior Design
    - .3 Furniture/Workstation Specialist
    - .4 Sustainable Design (LEED)
    - .5 Codes and life safety
    - .6 Building envelope
    - .7 Signage and Wayfinding
    - .8 Hardware specialist
    - .9 Security design specialist
  - .7 Engineering:
  - .8 Structural
    - .1 Seismic



- .9 Mechanical
  - .1 Heating Ventilation Air Conditioning (HVAC)
  - .2 Plumbing
  - .3 Fire protection
  - .4 Indoor / outdoor air quality design and control
  - .5 Building automation / energy management control systems
- .10 Electrical
  - .1 Power
  - .2 Lighting
  - .3 Audio visual systems
  - .4 Information technology and communications
  - .5 Network Infrastructure systems
  - .6 Security
- .11 Civil
- .12 Landscape Architecture
- .13 Commissioning
- .14 Budget, Schedule and Risk Analysis, Planning, Design, and Development
  - .1 Cost planning
  - .2 Estimating
  - .3 Life cycle costing,
  - .4 Change evaluation and cost control
  - .5 Time planning, scheduling, and schedule monitoring
  - .6 Risk management
  - .7 Cost planning
  - .8 Estimating
  - .9 Life cycle costing
  - .10 Change evaluation and cost control
  - .11 Time planning, scheduling, and schedule monitoring
  - .12 Risk management

## **PD 12 EXISTING DOCUMENTATION**

### **PD 12.1 EXISTING DOCUMENTATION**

- 12.1.1 To be made available upon contract award.
- .1 Site plan of RCMP detachment issued by PWGSC, February 2015.
- .2 Functional Assessment and analysis prepared by KMP Architectural inc. issued on July 22th 2013.
- .3 As Constructed Dease Lake Detachment drawings issued by PWSGC, November 1975.
- .4 Geotechnical investigation to be done by RCMP representative.
- .5 Topography survey to be done by RCMP representative.



# PROJECT ADMINISTRATION

## PA 1 PROJECT ADMINISTRATION

### PA 1.1. GENERAL

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

### PA 1.2. CONTRACT AUTHORITY

- 1.2.1. The RCMP is the Contract Authority.
- 1.2.2. Changes to the Consultant agreement can only be authorized by the Contract Authority.

### PA 1.3. RCMP PROJECT MANAGEMENT

- 1.3.1. The RCMP Senior Project Manager assigned to the project is the RCMP Departmental Representative.
- 1.3.2. The RCMP Departmental Representative is directly concerned with the project and responsible for its progress on behalf of the RCMP.
- 1.3.3. The RCMP administers the project and exercises continuing control over the project during all phases of development.
- 1.3.4. Unless directed otherwise by the 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.

### PA 1.4. LINES OF COMMUNICATION

- 1.4.1. Unless otherwise directed by the RCMP Departmental Representative, conduct all project communication.
- 1.4.2. Formal contact between the Consultant and the RCMP Project Team, which includes RCMP Representatives, shall be through the RCMP Project Manager.
- 1.4.3. 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 schedules unless directed in writing by the RCMP Departmental Representative.
- 1.4.4. During construction tender call the RCMP is responsible for all correspondence with bidders and awarding of the contract.

### PA 1.5. MEDIA RELATIONS

- 1.5.1. 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.
- 1.5.2. 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.



## **PA 1.6. GENERAL PROJECT DELIVERABLES**

- 1.6.1. Where deliverables and submissions include summaries, reports, network diagrams, drawings, plans, specifications or finish schedules, submit deliverables as follows:
- .1 Hard copies: Three (3) English
  - .2 Electronic format: One (1) copies English. The electronic deliverables shall be provided using Microsoft applications.
  - .3 Alternate 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.
  - .4 All drawings will be generated and distributed in the format using layering and file transfer protocols as prescribed in the reference document available online. Reference; <http://www.tpsgc-pwgsc.gc.ca/biens-property/cdao-cadd/index-eng.html>
  - .5 Record drawings will be delivered in electronic (PDF and CADD) and hard copy format.
- 1.6.2. Construction documents issued for tender purposes must be English.

## **PA 1.7. ACCEPTANCE OF PROJECT DELIVERABLES**

- 1.7.1. While the RCMP acknowledges the Consultant's obligations to meet project requirements, the project delivery process entitles the RCMP to review work. The RCMP reserves the right to reject undesirable or unsatisfactory work. The Consultant must obtain Departmental Representative acceptances during each of the project stages.
- 1.7.2. Acceptances indicate that based on a general review of material for specific issues, the material is considered to comply with governmental and departmental objectives and practices, and that overall project objectives are being satisfied.
- 1.7.3. The acceptance does not relieve the Consultant of professional responsibility for the work and compliance with the contract.
- 1.7.4. The RCMP acceptances do not prohibit rejection of work, which is determined to be unsatisfactory at later stages of review. If progressive design development or time / cost / risk updates or technical investigation reveals that earlier acceptances must be withdrawn, the Consultant is responsible for re-designing work and re-submitting for acceptance at the Consultant's cost.
- 1.7.5. 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.

## **PA 1.8. COORDINATION WITH SUB-CONSULTANTS**

- 1.8.1. Throughout all phases of the project, assume responsibility for co-ordinating the work of any Sub-Consultants and specialists retained by the Consultant,
- 1.8.2. 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.

- 1.8.3. Co-ordinate input for the Departmental Representative's Risk Management Plan.
- 1.8.4. Co-ordinate the Quality Assurance process ensuring submissions of Sub-Consultants are complete and signed-off by the designated senior reviewer of the Consultant.
- 1.8.5. Ensure Sub-Consultants provide adequate site inspection services and attend all required meetings.

### **PA 1.9. PROJECT RESPONSE TIME**

- 1.9.1. 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 (48 hours) of a request by the RCMP Project Manager.

### **PA 1.10. MEETINGS**

The Consultant with the RCMP Departmental Representative shall arrange meetings generally bi-weekly throughout the entire project development and implementation period, for all members of the project Team, including representatives from RCMP; Consultant Team; and General Contractor. Due to its remote location, RCMP representative or as a recommendation from The Consultant will determine when meetings must be in person. Refer to PD 4.6 for more details.

- 1.10.1. During design and tendering phases:
  - .1 Attend the meetings,
  - .2 Record the issues and decisions,
  - .3 Prepare and distribute minutes within two (2) working days of the meeting.
  - .4 Meetings will normally be held at the office of the RCMP Departmental Representative, or the Consultant.
- 1.10.2. During construction and implementation:
  - .1 Attend the meetings,
  - .2 Prepare and distribute minutes within two (2) working days of the meeting.
  - .3 Standing agenda items shall include:
    - .1 Project Planning Monitoring and Control.
    - .2 Health and Safety.
    - .3 Schedule.
    - .4 Cost.
    - .5 Risk.
  - .4 On occasion, there may be urgent problem-solving meetings. The Consultant and sub-Consultants as required shall be available to attend such meetings.



## **PA 2 AUTHORITIES, SUBMISSIONS, REVIEW AND APPROVAL PROCESSES**

### **PA 2.1. FEDERAL GOVERNMENT AUTHORITY/JURISDICTION**

2.1.1. The following are authorities having Federal Government jurisdiction over the project:

- .6 Treasury Board of Canada
  - .1 Project approvals
- .7 The Royal Canadian Mounted Police
  - .1 Tendering and procurement
  - .2 Contract approvals
  - .3 Contract Authority
  - .4 Government of Canada Security Policy
  - .5 RCMP Departmental Authority
  - .6 Project delivery
  - .7 Functional design requirements and standards
  - .8 Multimedia
  - .9 IT
  - .10 Security systems
  - .11 Life safety
  - .12 Personnel Security
- .8 Environment Canada
  - .1 Canadian Environmental Assessment Act and
  - .2 Canadian Environmental Protection Act
- .9 National Building Code
  - .1 Building codes and standards

### **PA 2.2. PROVINCIAL AND MUNICIPAL AUTHORITIES/JURISDICTION**

2.2.1. The Federal government does defer to provincial and municipal authorities for specific regulations, standards and inspections. In areas of conflict, the Federal authority prevails.

- .1 Labour Board
  - .1 Employment Standards
  - .2 Construction Safety
  - .3 Designated Substance Management
  - .4 Workers Compensation
- .2 Local Electrical and Gas Authority if applied
  - .1 Electrical installations
- .3 Natural Gas installation if applied
- .4 Municipality/City Authority/Utility
  - .1 Zoning
  - .2 Site Plan Control, development plan
  - .3 Building, Electrical and Plumbing Permits and Inspection
  - .4 Fire Safety, Equipment and access for fire-fighting equipment

### **PA 2.3. PRESENTATIONS AND SUBMISSIONS**

2.3.1. 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 in Required Services (RS). Ad hoc presentations will be required to



various committees and senior officials. Below is a list of federal Authorities that will require presentations and submissions for approval.

- 2.3.2. 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.
- 2.3.3. Municipal Building Permits and Other Permits:
  - .1 Co-ordinate submission requirements, schedule, number of submissions and turnaround time with the regional authority of Kitimat-Skitline:
  - .2 Development Permit
    - .1 While regional Development and site Planning approval is not required for Federal Properties, consultation with the municipal planning / zoning officials shall be undertaken for this project.
    - .2 On behalf of the RCMP, the *Consultant* shall submit design development documents to the regional authority for review and comment regarding site planning.
    - .3 The *Consultant* shall undertake negotiations and identify any problems to the *Departmental Representative* for final resolution by the RCMP.
  - .3 Building Permit
    - .1 On behalf of the RCMP, the contractor shall apply for a Building Permit.
    - .2 The Consultant will prepare all necessary supporting documentation for this permit application.
    - .3 The Consultant shall complete negotiations and resolve all permit related issues prior to tender.
    - .4 Regional authorities could inspect the construction site.
    - .5 For this project, which will utilize the National Building Code, early and periodic submissions/ presentations to the city by the Consultant will be required.
    - .6 Submissions will begin at the Schematic Design Phase including the options analysis and selected design option.
    - .7 Subsequent submissions / presentations will be required throughout the remainder of the design phases including during Pre Design Analysis, Design Development and at each of 33%, 66% and 99% complete Construction Documents.
  - .4 Occupancy Permit
    - .1 The contractor shall apply for an Occupancy Permit.
    - .2 The Consultant shall coordinate the resolution of all outstanding issues related to obtaining the permit.
    - .3 Regional authorities will have access to the site as required.
- 2.3.4. RCMP Senior Management Approvals
  - .1 The Project will be subject to approvals by senior managers of the RCMP.
  - .2 Purpose of review and approval:
    - .1 Final decision authority for all options
  - .3 Submission format:
    - .1 Report, Drawings and specifications, Oral presentation, unilingual English
  - .4 Submission schedule:
    - .1 Submissions are reviewed at schematic (concept) design phase, design development phase, Pre-Tender
  - .5 Number of submissions:





- .1 As required to obtain approval with the assumption that acceptance of submissions for approval will be progressive and based on previous approvals.
- .2 One (1) mandatory submission for each scheduled occurrence, plus any follow-up reviews.

#### 2.3.5. RCMP Project Delivery Team

- .1 Purpose of review and approval:
  - .1 Program and budget compliance, design, and technical quality assurance
- .2 Submission format:
  - .1 Reports, drawings and specifications, oral presentation, unilingual English
- .3 Submission schedule - submissions are reviewed at;
  - .1 pre-design /schematic (concept) phase, design phase, design development phase, construction documents phase, 33%, 66% and 99% complete
- .4 Expected review and approval turnaround time:
  - .1 2 weeks (10 working days)
- .5 Number of submissions:
  - .1 One at each stage providing Five (5) mandatory hard copies and one (1) electronic copy for each scheduled occurrence, plus any follow-up reviews.

#### 2.3.6. RCMP Fire Marshall – Health and Safety

- .1 Purpose of Review and Approval:
  - .1 Health and life safety;
- .2 Submission Format:
  - .1 report, drawings and specifications as required;
- .3 Submission Schedule:
  - .1 Approvals required as described per stages;
- .4 Expected Turnaround Time:
  - .1 three (3) weeks; (15 working days)
- .5 Number of Submissions: until approval has been received.

#### 2.3.7. Region

- .1 Purpose of Review and Approval:
  - .1 Regional approvals
  - .2 Site plan approval, Building permit, Occupancy permit.
- .2 Submission Format:
  - .1 Drawings and specifications;
- .3 Submission Schedule:
  - .1 Submissions are reviewed when completed work has been forwarded to the Departmental Representative for site plan and building permit approvals;
- .4 Expected Turnaround Time:
  - .1 According to municipal schedules;
- .5 Number of Submissions:
  - .1 Until approval has been received.

#### 2.3.8. Other Authorities Having Jurisdiction

- .1 Although the Federal Government does not formally recognize jurisdiction at other levels of government, voluntary compliance with the requirement of these other Authorities is a requirement unless otherwise directed by the Departmental Representative.



- .2 Codes, regulations, by laws and decisions of authorities having jurisdiction shall be observed.
- .3 In cases of overlap, the most stringent will apply. The Consultant shall identify other jurisdictions appropriate to the project.
- .4 The RCMP will voluntarily comply with the applicable provincial Construction Health and Safety Acts and regulations, in addition to the related Canada Occupational Safety and Health Regulations.



# REQUIRED SERVICES

## RS 1 ANALYSIS OF PROJECT REQUIREMENTS

### RS 1.1 INTENT

1.1.1 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.

### RS 1.2 SCOPE AND ACTIVITIES:

- 1.2.1 Analyse the project requirements / program including any amendments.
- 1.2.2 Options analysis of the project design and delivery approach of modular vs on site construction. Consideration must be given to but not limited to analysing cost, logistics, schedule and any other benefits or disadvantages of either options.
- 1.2.3 Analyse all available base building and site information.
- 1.2.4 Analyse BCC requirements including any amendments identified by the RCMP for Information Services, Security and Furniture / Equipment.
- 1.2.5 Analyse the building design security requirements and confirm design standards.
- 1.2.6 Identify sustainable design strategies and confirm design requirements to meet LEED standards. (Note: submission for certification will not occur).
- 1.2.7 Review all other available existing material related to the project including requirements identified in the Project Brief.
- 1.2.8 Identify all additional information that will be needed to deliver the project.
- 1.2.9 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.
- 1.2.10 Identify and verify all authorities having jurisdiction over the project and codes, regulations and standards that apply.
- 1.2.11 Develop an updated detailed work breakdown structure that incorporates all of the above together with a detailed schedule including allowances for reviews and approvals for each stage of the project including deliverable requirements for BCC, Information Services and Security to be integrated into base building.

### RS 1.3 DELIVERABLES

- 1.3.1 Prepare and submit an integrated Stage One Pre-Design Project Report, which includes a functional program and an analysis modular vs on site construction of project requirements for review and approval by the Departmental Representative. Revise as required by the Departmental Representative. Resubmit for acceptance.
- 1.3.2 The Stage One Pre-Design Project 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.
- 1.3.3 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.

## **RS 1.4 STAGE ONE PRE-DESIGN PROJECT REPORT STRUCTURE AND CONTENT**

### 1.4.1 Executive Summary

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

### 1.4.2 Administrative

Aspects to be included (but not limited to) are:

- .1 Summaries of project start-up meetings, workshops, partnering sessions.
- .2 Quality management process for the Consultant Team.
- .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.
- .4 Summary analysis of state of project readiness and viability of budget and schedule.

### 1.4.3 Regulatory Analysis

Aspects to be included (but not limited to) are:

- .1 Preliminary summary of regulatory and statutory requirements,
- .2 Preliminary summary of authorities having jurisdiction,
- .3 Preliminary summary of codes, regulations, and standards, and
- .4 Summary analysis of regulatory limitations and project impacts.

### 1.4.4 Program Analysis

Aspects to be included (but not limited to) are a review and analysis of:

- .1 Updated Functional program including room data sheets
- .2 Programmatic options,
- .3 RCMP reports, studies Guidelines,
- .4 Space data sheets,
- .5 Work station/work settings report, office, common area and commercial space requirements,
- .6 BCC requirements,
- .7 Summary analysis of Program requirements.

### 1.4.5 Site Analysis

Aspects to be included (but not limited to) are a review and analysis of:

- .1 Site features and restrictions (i.e. landscape features, topographical feature, climatic influences, setback requirements, easements, existing buildings, and / or structures.), parking capacity,
- .2 Review of subsurface, geotechnical analysis of soils,
- .3 Municipal infrastructure, subsurface and above grade services, including capacities and limitations (i.e. storm water drainage, fire protection, domestic water, power, telecommunications,),
- .4 Historical/archaeological features, previous uses
- .5 Environmental features including sustainable design opportunities
- .6 Summary analysis of Site conditions and project impact.

### 1.4.6 Building Analysis

Aspects to be included (but not limited to) are a review and analysis of:



- .1 Substructure, including foundations and basement(s),
- .2 Shell, including superstructure, exterior enclosure, roofing,
- .3 Interiors, including building levels, interior construction,
- .4 Services, including conveying (elevators, escalators), plumbing, HVAC, fire protection, electrical, telecommunications, building automation,
- .5 Sustainable design opportunities, strategies, (i.e. energy, water, waste), and,
- .6 Summary analysis of building considerations.

#### 1.4.7 Sustainable Development Strategies

Aspects to be included (but not limited to) are a review and analysis of:

- .1 Potential for environmental impacts and project impacts required by application of the Canadian Environmental Assessment (CEA) Act,
- .2 Review and assessment of sustainable development design standards to be applied to the project, the project to meet LEED standards or equivalent standard (i.e. energy, water, waste),
- .3 Project approach to minimize environmental impacts consistent with the project objectives and economic constraints.
- .4 Summary analysis of sustainable Development strategies and approach.

#### 1.4.8 Budget, Schedule, and Risk Analysis

##### 1.4.9 Aspects to be included (but not limited to) are:

- .1 Class 'D' estimate, for construction and BCC,
- .2 Detailed work breakdown structure complete with level four sub-tasks,
- .3 Analysis of risk implications and preliminary mitigation strategies, and
- .4 Budget, Schedule, and Risk Analysis section of the pre-design report.

#### 1.4.10 Rebuttal to internal/external Quality Assurance Audit

##### 1.4.11 Aspects to be included (but not limited to) are:

- .1 Review and analysis of comments provided by the RCMP Project Team, and
- .2 Summary and results of internal Peer Reviews.
- .3 Written response to all comments provided by the above and a summary of project impacts.

## **RS 2 SCHEMATIC DESIGN (DESIGN CONCEPT)**

### **RS 2.1 INTENT**

- 2.1.1 The Consultant must obtain written authorization from the RCMP Departmental Representative before proceeding with Schematic Design.
- 2.1.2 The objective of the Schematic Design stage, also referred to in this Project Brief as Design Concept, is to explore **three** distinctly different design options and to analyze them against the project requirements.
- 2.1.3 The Consultant Team will explore three distinctly different design concepts presented in sketch format (single line, produced to scale), fully integrated and supported by two or more distinctly different engineering solutions for the structure, mechanical, electrical systems, along with physical or digital massing models, site slides and photographs, energy analysis and life cycle cost analysis, analytical data and calculations and sufficient narrative to allow comparison and analysis against project requirements, budget, and the selection of a design direction for preparation of a final design concept.
- 2.1.4 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 a Schematic Design option will be accepted and authorization to proceed to the next phase.

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

2.1.6 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.)

## **RS 2.2 SCOPE AND ACTIVITIES:**

2.2.1 Review, validate and update the details of the Functional Program requirements, including space data sheets,

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

2.2.3 Develop the sustainable design strategy,

2.2.4 Prepare a minimum of three (3) Schematic Design options,

2.2.5 Analyse each option with regard to the project goals including cost and schedule,

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

2.2.7 Present / submit Schematic Design options for review and approval to committees, review groups and authorities having jurisdiction as identified in the Project Administration (PA) section,

2.2.8 Provide and- / or coordinate all project requirements,

2.2.9 Coordinate all services with the Departmental Representative.

## **RS 2.3 DELIVERABLES**

2.3.1 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.

2.3.2 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.

2.3.3 The 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.

2.3.4 The schematic (Concept) Design Report shall include written narrative, schematic drawings, graphics, model (traditional and / or computer generated).

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

- .1 Updated Functional Program including base building requirements and room data sheets,
- .2 Statement of design principles for all disciplines,
- .3 Drawings, renderings and supporting 3D visualization illustrating the building interior / exterior, site,
- .4 Principles of BCC: Information Services, Security, Built-in Furniture and Equipment integration with base building,
- .5 Outline specifications for building systems and equipment performance,
- .6 Sustainable Development Strategies and Report including:



- .7 Sustainable design opportunities, strategies, documentation of preliminary budgets (i.e. energy, water, waste),
- .8 Identify which LEED equivalent Water Efficiency credits, Energy credits, Material credits; Indoor Environmental Quality credits will be pursued. For those credits identified, provide a short description on how they will be achieved.
- .9 Risk Assessment Report,
- .10 Report on any deviations that will affect cost or schedule and recommend corrective measures,
- .11 Description of implementation plan,
- .12 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,
- .13 Class 'C' Estimate,
- .14 Submit Project Log tracking all approved major decisions including those affecting changes to project scope, budget and schedule.

## **RS 2.4 PRESENTATIONS**

- 2.4.1 The Consultant Team shall deliver presentations for the Schematic (concept) Design stage to RCMP, as outlined in the PA Submissions, Review, and Approval Process.

## **RS 2.5 DETAILS**

### 2.5.1 Architectural

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

### 2.5.2 Civil

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

### 2.5.3 Structural / Seismic

- .1 General description of structures, including systems considered and benefits/disadvantages.
- .2 Preliminary design loads for all load cases.



- .3 Concept drawings of structural systems proposed, including typical floor plans, foundations, lateral systems and explanatory sketches.

#### 2.5.4 Mechanical

- .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.
- .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.
- .3 Identify whether full time operating staff will be needed for operating any of the mechanical equipment. Differentiate between staff that is needed by code requirements versus that staff which may be needed because of the nature and size of the facility.
- .4 Identify location of entry point into the building of all mechanical services into the building.
- .5 Confirm in square metres 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 Carry out preliminary energy analysis on system alternatives.
- .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.

#### 2.5.5 Electrical

- .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.
- .2 Site plan showing location of electrical and telecommunication service entrances.
- .3 Normal and Emergency power distribution details including a diagram showing distribution up to distribution centres on each floor.
- .4 Floor plans indicating locations and size of major electrical equipment and distribution centres.
- .5 Floor plans indicating locations and size of telecommunications rooms, closets and major conduits.
- .6 Typical lighting concepts for the interior and exterior environments including roads and parking areas.
- .7 Typical ceiling or floor distribution systems for lighting, power, and telecommunications.
- .8 Fire alarm system concept.
- .9 BCC integration concepts.

#### 2.5.6 Furniture / Equipment

- .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, Finishes.
- .2 Recommendations are to take into consideration the client's vision, functional requirements, proposed planning alternatives, space allocation and project budget.
- .3 Prepare a Class 'C' cost estimate for the purchase of new furniture and equipment.
- .4 Document scheduling requirements for the procurement of new furniture and equipment.





## **RS 3 DESIGN DEVELOPMENT**

### **RS 3.1 INTENT**

3.1.1 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.

### **RS 3.2 SCOPE AND ACTIVITIES:**

3.2.1 Obtain written approval from Departmental Representative to proceed to Design Development Stage,

3.2.2 Review, validate and update details of program requirements, and base building requirements with the RCMP,

3.2.3 Update Functional Program room data sheets as required,

3.2.4 Coordinate services as required for BCC with project Information Services, Security, Furniture and Equipment,

3.2.5 Develop the sustainable design strategy; provide a LEED or equivalent scorecard indicating which credits the design will or does meet.

3.2.6 If any alterations are required, analyse the impact on all project components, and resubmit for approval if required,

3.2.7 Expand and clarify the Schematic Design intent for each design discipline,

3.2.8 Present / submit design and materials for review and approval to committees, review groups and authorities having jurisdiction as identified in section Project Administration,

3.2.9 Provide and / or coordinate all information for all project disciplines,

3.2.10 Analyse the constructability of the project and advise on the construction phasing process and duration,

3.2.11 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,

3.2.12 Coordinate services with Departmental Representative,

3.2.13 Continue to review all applicable statutes, regulations, codes and by-laws in relation to the design of the project.

3.2.14 Confirm all aspects of the proposed Site design development.



### RS 3.3 DELIVERABLES

- 3.3.1 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.
- 3.3.2 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.
- 3.3.3 Stage Three Report:
- .1 Updated Functional Program including base building requirements and integration of BCC,
  - .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,
  - .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,
  - .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.
  - .5 Finishes and colour schemes, including Furniture / Equipment,
  - .6 Site / building renderings, 3D visualization,
  - .7 Sustainable Development Strategies and Report,
  - .8 Updated sustainable design opportunities, strategies, updated budgets (i.e. energy, water, waste, sustainable procurement strategies),
  - .9 LEED equivalent scorecard indicating which LEED equivalent credits the design does or will meet;
  - .10 Natural Resources Canada EE4 energy simulation of the selected design option, including estimated annual energy cost as predicted by EE4 using current energy cost for the project location;
  - .11 Update to Risk Assessment Report,
  - .12 Fire Protection Engineers Report including requirements, strategies or interventions for protection of the building and its occupants,
  - .13 Outline Commissioning Plan,
  - .14 Outline Operation and Maintenance (O&M) Manual.
  - .15 Description of contract packaging and implementation plan,
  - .16 Preliminary construction schedule including long-term delivery items,
  - .17 Updated detailed schedule including deliverable requirements to be provided for BCC: Information Services, Security, Furniture and Equipment, to be integrated into base building,
  - .18 Updated Class 'C' Estimate including estimated annual cash flows,
  - .19 Update life cycle cost analysis;
  - .20 Update milestone project schedule, complete with summary of revisions and mitigation strategies (if significant change occurs).
  - .21 Project Log tracking all approved major decisions including those affecting changes to project scope, budget and schedule,



- .22 Stage Three Project Report, Design Development consolidating all of the above.

### **RS 3.4 PRESENTATIONS**

- 3.4.1 The Consultant Team shall deliver presentations for the Design Development stage, as outlined in the PA Submissions, Review, and Approval Process.

### **RS 3.5 DETAILS**

#### 3.5.1 Architectural

- .1 Site plan showing the building and Infrastructure items including pedestrian, vehicular, parking, fire routes, security, delivery service access,
- .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.
- .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.
- .4 Cross-sections through the building(s) to show floor levels, room heights, inner corridor elevations.
- .5 Detail Sections of walls or special design features requiring illustration and explanation of this stage, including fireproofing methods, physical, acoustical security.
- .6 Reflected ceiling plans.
- .7 Architectural, materials, millwork, finishing details and samples to determine choice of materials and finishes.
- .8 Plans and typical details for Built-in Furniture.
- .9 Details of integration of Information Services, Security, Furniture / Equipment with Built-in Furniture.
- .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.

#### 3.5.2 Civil

- .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.
- .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.
- .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.
- .4 Provide typical trench and related details, including profiles of below grade services.
- .5 Indicate locations of and provide details of independent utility infrastructure and services such as underground tanks, vaults, wells and utility service pads

#### 3.5.3 Structural / Seismic



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

#### 3.5.4 Mechanical

- .1 For the selected option develop a minimum of:
  - .1. A baseline system and Two (2) HVAC systems options.
  - .2. Develop additional sub-systems options, which were not developed in the schematic/concept stage. This may include types of boilers, chillers, fans, cooling towers, humidification, and controls.
  - .3. Analyse and compare options using methods including internal Peer Review and select a recommended option.
  - .4. Develop the design in detail with the recommended option
- .2 Site Plan showing service entrances for, domestic water supply, sanitary and storm drains and connections to utility services, including all key invert elevations.
- .3 Drawings showing preliminary sizing of ventilation, cooling and heating systems showing locations, and all major equipment layouts in mechanical rooms.
- .4 Drawings of plumbing system, showing routing and sizing of major lines and location of pumping and other equipment where required.
- .5 Drawings of the fire protection systems showing major components.
- .6 Provide written description of design concepts and all specific system components to provide service redundancy in support of business continuity
- .7 Update the energy analysis and energy budget.
- .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.
- .9 Analysis of selected equipment and plant with schematics and calculations sufficient to justify the economy of the selected systems.
- .10 Describe the mechanical systems to be provided and the components of each system including mechanical ancillary devices needed to support emergency power systems.
- .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.
- .12 Explain what acoustical and sound control measures are to be included in the design.

#### 3.5.5 Electrical

- .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.
- .2 Identify Utility requirements and indicate short circuit information at point of entry.



- .3 Elaborate on proposed emergency power scheme and provide preliminary installation details for emergency generator installation(s).
- .4 Indicate metering locations on distribution diagram.
- .5 Provide typical lighting, power and telecommunication system details for all workspaces.
- .6 Include lighting design and control schemes for typical lighting arrangements.
- .7 Elaborate on exterior lighting scheme. Provide typical fixture concepts.
- .8 Provide a fire alarm riser diagram.
- .9 Submit detailed BCC integration concepts.
- .10 Indicate security system major conduit requirements on floor plans.
- .11 Provide typical security system details (conduit and boxes) that will be included on construction drawings.

#### 3.5.6 Commissioning

- .1 To be prepared by the Architect and Mechanical / Electrical Sub-Consultants, in coordination with the Commissioning Sub-Consultant:
- .2 Define requirements for project records and how these records will be managed, updated, and submitted at the end of the project.
- .3 Provide an outline of the proposed Commissioning procedures, protocols and schedule requirements.
- .4 Prepare a list of Spare or specialty equipment, extra material and redundancies needed to operate and maintain this facility over its life expectancy.
- .5 Assessment of:
  - .1. Staffing & skill requirements to operate and maintain the facility.
  - .2. The need for service contracts, i.e. elevators, water treatment, controls emergency generators, fire alarm.
- .6 Prepare a preliminary O&M budget (Class C).
- .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.

#### 3.5.7 Furniture / Equipment

- .1 Provide Furniture / Equipment plans with optional layouts as developed with the BCC suppliers for operational systems consoles and furniture
- .2 Prepare a comprehensive list for all rooms and building exterior.
- .3 Preliminary Furniture Plans:
  - .1. The Consultant shall discuss with the Departmental Representative the anticipated method of furniture and equipment procurement to be utilized for this project in order to more clearly define the specific requirements under this section. 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.
  - .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.
  - .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) alternative furniture and



equipment systems and make design adjustments as required to accommodate selected systems.

- .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.
- .5. Illustrate preliminary location and identification of all major equipment including but not limited to network equipment and video displays.
- .6. Illustrate sight lines for all workstations to multimedia displays in operational, training and collaborative spaces.
- .7. Identify and illustrate preliminary electrical, telephone, data, voice and video infrastructure in support of selected systems layout / locations.

## **RS 4 CONSTRUCTION DOCUMENTS**

### **RS 4.1 INTENT**

4.1.1 The Consultant must obtain written authorization from the Departmental Representative before proceeding with Construction Documents.

- .1 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.
- .2 Prepare drawings and specifications setting forth in detail the requirements for the construction and final cost estimate for each tender package for the project.
- .3 Construction documents shall be prepared in four phases as follows with progressive submissions for review and approval by the RCMP.
- .4 33% indicates technical 33% completeness of all Construction documents,
- .5 66% indicates substantial technical development of the project - well advanced architectural and engineering plans, elevations, sections, details, schedules and specifications,
- .6 99% is the submission of complete Construction Documents ready for tender call,
- .7 Final Submission incorporates all revisions required in the 99% version and is intended to provide the Departmental Representative with complete Construction documents ready for tender call.
- .8 The Final Submission shall be in English.

### **RS 4.2 GENERAL**

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

### **RS 4.3 SCOPE AND ACTIVITIES:**

- 4.3.1 Obtain Departmental Representative's approval for Construction Documents submissions (33%, 66%, 99% and final),
- 4.3.2 Confirm format of drawings and specifications, Provide 1 copy to the RCMP Representative and 2 copies to the contractor
- 4.3.3 Provide full coordination of all disciplines between all tender packages,
- 4.3.4 Clarify special procedures,
- 4.3.5 Submit drawings and specifications at the required stages (33%, 66%, and 99%),
- 4.3.6 Include base building Information Services and Security pathways and service infrastructure at each stage,



- 4.3.7 Provide written response to each disciplines peer review comments and incorporate them into Construction Documents where required,
- 4.3.8 Advise as to the progress of cost estimates and submit updated cost estimates for each tender package as the project develops,
- 4.3.9 Update the project schedule including deliverable requirements to be provided for BCC: Information Services, Security to be integrated into base building,
- 4.3.10 Review and confirm the Class 'C' estimate with the 33% submission.
- 4.3.11 Prepare a Class 'B' estimate for submission with the 66% submission.
- 4.3.12 Prepare a final Class 'A' estimate with the 99% submission for each tender package including estimated annual cash flows during projected construction period,
- 4.3.13 Review and approve materials and construction processes and specifications to meet sustainable development objectives and commissioning,
- 4.3.14 Establish quality control process to be implemented during construction through sample mock-ups or model areas as part of Construction and Contract Administration stage.
- 4.3.15 For all disciplines, develop outline for project specific Operation and Maintenance Manuals for each building system,
- 4.3.16 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:
  - .1 Final code statement;
  - .2 Final zoning data summary;
  - .3 Final fire separations and life safety plans;
  - .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.
  - .5 Sign and seal one (1) set of 100% complete construction documents for building permit application; and
  - .6 Provide necessary follow-up regarding building permit application;

#### **RS 4.4 DELIVERABLES**

- 4.4.1 Deliverables shall occur in four stages, completeness of the project development shall reflect the stage of submission: 33%, 66%, 99% or 100%.
- 4.4.2 Separate tender packages
  - .1 Separate tender package for the construction of the base building
  - .2 Separate tender packages for each BCC component as defined in section PD 5.
- 4.4.3 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.
- 4.4.4 The Stage Four Project Report shall be provided in written narrative, graphic, model (traditional and / or computer generated), and photographic format.
- 4.4.5 Deliverables are similar at 33%, 66%, 99% stages; completeness of the project development shall reflect the stage of a submission.
- 4.4.6 33, 66, and 99% Submissions



- .1 Coordinate all disciplines within and between all tender packages including any scope changes that may be required to remain within budget.
- .2 Documented responses to RCMP review comments from previous submission.
- .3 Complete written peer reviews with responses to review comments and incorporate them into Construction Documents where required,
- .4 Complete specification and working drawings for all tender packages.
- .5 Complete Commissioning plan.
- .6 Outline Systems Operation Manual (SOM) detailing each building system.
- .7 Updated EE4 energy simulation including estimated annual energy cost as predicted by EE4 using current energy cost for the project location.
- .8 One copy of the complete colour schedules, including textures, sheens, colour chips and material samples.
- .9 One copy of support data, studies, calculations.
- .10 Updated Risk Analysis,
- .11 Updated project cost estimate
- .12 Updated Project Schedule.
- .13 Update Project Log tracking all approved major decisions including those affecting changes to project scope, budget and schedule.

#### 4.4.7 Final Submission

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

## **RS 4.5 SUPPLEMENTARY SUBMISSION REQUIREMENTS**

### 4.5.1 Commissioning Specifications

- .1 Use NMS for commissioning as the basis for the project specifications for commissioning. Prepare additional specifications for systems where NMS specifications do not exist. Complete design information required in the performance verification report forms.
- .2 Specify detailed performance verification procedures and output, documents, scheduling and reporting requirements.
- .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.
- .4 Develop a training package for Operation & Maintenance personnel and include in specification.
- .5 Use NMS for the identification of equipment and inventory in conjunction with the PMSS / MMS.
- .6 Provide PMSS / MMS coding and system nomenclature on tender





- documents within equipment schedules and on all single line diagrams.
- .7 Obtain approval of equipment PMSS / MMS identification from the RCMP Commissioning Manager or designate.
- 4.5.2 Commissioning Submission Requirements
- .8 Outline commissioning plans and specifications included with the 33% construction documents should include the following:
- .1. Typical floor plans with general ductwork layouts and duct sizes
  - .2. Mechanical equipment room layouts and sections with all major systems
  - .3. Schematics of EMCS, system architecture, sequence of operation, wiring diagrams
  - .4. Riser diagrams
  - .5. System schematics
  - .6. Complete specifications including all sections
  - .7. Commissioning sequence plan
  - .8. Building management manual and training plan
  - .9. Updated O & M budget
  - .10. General plumbing and fixtures layouts
- .9 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.
- .10 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.
- .11 Submit a comprehensive system operator Training Plan.
- .12 Final submission O&M manual and System operator training plan documents to be English
- 4.5.3 Final Furniture and Equipment Plans:
- .13 The Consultant shall prepare final furniture and equipment plans and specifications. Plans and information to include but are not limited to the following:
- .1 Final partition locations,
  - .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,
  - .3 Identification of end-user positions/functions at each open workstation, enclosed office or workstation setting,
  - .4 Review of supplier / manufacturer component counts, fittings, and all accessories,
  - .5 Final location and identification of all equipment, including but not limited to network equipment and video displays,
  - .6 Review plans to confirm compliance with all Code requirements related to life safety, and accessibility
  - .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.
- .14 Based on approved colour scheme presented in Concept Design Stage prepare a Final finishes presentation board for all furniture requirements,
- .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.
- .15 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:
- .1. Lighting layout, and zoning
  - .2. Task lighting systems and controls
  - .3. Location of light switches,
  - .4. Location of thermostats,
  - .5. Fire hose cabinets location and space requirements,
  - .6. Additional cooling / exhaust location requirements,
  - .7. Personal environmental control unit locations if applicable (PEC).
- 4.5.4 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.
- 4.5.5 Furniture / Equipment (BCC)
- .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.
  - .2 Prepare plans and specifications at the 33%, 66%, 99% and Final submissions for all required tender packages.
  - .3 Prepare systems furniture and equipment systems contract documents drawings and specifications including the following:
    - .16 Location of acoustical screens complete with critical installation dimensions,
    - .17 Location of all panel supported or free standing work surfaces and related components for all work stations,
    - .18 List of all accessories and lighting components,
    - .19 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,
    - .20 Telephone, electrical and data source locations,
    - .21 List of screens complete with electrical harnesses and outlets,
    - .22 Legend indicating type, size, fabric(s) and electrical requirements.
    - .23 Location, size, mounting and connectivity requirements for all AV and specialized systems and equipment.

## **RS 4.6 PRESENTATIONS**

- 4.6.1 The Consultant Team shall deliver presentations for the Construction Documents stage, as outlined in the PA Submissions, Review, and Approval Process.

## **RS 4.7 CONSTRUCTION DOCUMENT PRODUCTION IN-PROGRESS REVIEWS**

- 4.7.1 Technical and Production Meetings (Project Delivery Coordination Meetings)
- .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.
  - .2 Representatives from the RCMP support staff will be present as arranged by the RCMP Departmental Representative.



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

4.7.2 Progress Review

- .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.

## **RS 5 TENDER CALL, BID EVALUATION & CONSTRUCTION CONTRACT AWARD**

### **RS 5.1 INTENT**

- 5.1.1 Provide technical support and documentation to the Departmental Representative to support the Contract Authority and Construction Manager as required to issue and execute the tender calls, evaluate bids and award contracts. The construction will be delivered through a Design-Bid-Build process.

### **RS 5.2 SCOPE AND ACTIVITIES:**

- 5.2.1 Coordinate all activities with the Contracting Authority,
- 5.2.2 Provide technical documentation in the form of plans and specifications to the Departmental Representative as prescribed.
- 5.2.3 Contracting Authority will provide and issue the general conditions of the contract and specific tender requirements to the bidders.
- 5.2.4 Consultant and representatives of each sub-consultant discipline to attend bidders briefing meeting(s),
- 5.2.5 Prepare addenda based on questions arising in such meetings for issue by the Contracting Authority,
- 5.2.6 Provide the Departmental Representative, with all information required by Bidders to fully interpret the Construction Documents.
- 5.2.7 Make recommendations for issue of addenda as a result of informal inquiries as required.
- 5.2.8 Provide a summary of inquiries at the conclusion of the tender period for project records,
- 5.2.9 Assist in tender evaluation by providing advice on the following:
  - .1 The completeness and compliance with tender requirements of tender submissions in all respects.
  - .2 The effect of alternatives and qualifications, which may have been included in the tender.
  - .3 Evaluation and explanation of variations of the tender cost which exceed 10% of the pre tender estimate.
  - .4 The bidders' capability to undertake the full scope of work.
- 5.2.10 If the Contracting Authority must re-tender the project, or any specific tender package or furniture and equipment procurement package for reasons other than cost overruns, provide proposals for additional services as required to the RCMP



- Departmental Representative to revise the scope of the tendered work.
- 5.2.11 If tenders exceed the pretender 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,
- 5.2.12 Examine and report on any cost and schedule impact created by the issue of tender / contract addenda.
- 5.2.13 Analyze, revise, and resubmit requests from the municipal building department with respect to the building permit application;
- 5.2.14 Follow-up with the Municipal Official the status of the building permit application.

### **RS 5.3 DELIVERABLES**

- 5.3.1 Electronic copies of drawings and specifications,
- 5.3.2 Addenda as required,
- 5.3.3 Changes to the documents, if re-tendering is necessary,
- 5.3.4 Updated cost estimate and schedule,
- 5.3.5 Submit to the Contract Authority, 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.
- 5.3.6 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.

## **RS 6 CONSTRUCTION AND CONTRACT ADMINISTRATION**

### **RS 6.1 INTENT**

- 6.1.1 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.

### **RS 6.2 SCOPE AND ACTIVITIES:**

- 6.2.1 Coordinate all activities with the Departmental Representative,
- 6.2.2 During the implementation of the project, lead activities, in consultation with the RCMP Departmental Representative's behalf to the extent provided in this document,
- 6.2.3 Carry out the review of the work at intervals appropriate to determine if the work is in conformity with the Contract Documents,
- 6.2.4 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,
- 6.2.5 Ensure compliance with Commissioning Plan, update plan as necessary,
- 6.2.6 Determine the amounts owing to the Contractor based on the progress of the work, and certify payments to the Contractor,
- 6.2.7 Act as interpreter of the requirements of the contract documents,
- 6.2.8 Provide cost advice during construction,
- 6.2.9 Advise the RCMP Departmental Representative of all potential changes to scope for the duration of the implementation,
- 6.2.10 Review the Contractor's submittals,



- 6.2.11 Prepare and justify change orders for issue by the Contract authority,
- 6.2.12 Indicate any changes or material / equipment substitutions on Record Documents,
- 6.2.13 During the twelve (12) month warranty period, investigate all defects and alleged defects and issue instructions to the Contractor,
- 6.2.14 Prepare and post Systems Operating Instructions for BOM,
- 6.2.15 Finalize Systems Operations Manual and O&M Manual to 100% status, reflecting as-commissioned operation of all building systems. Submit four (4) copies in English, and one (1) in electronic format,
- 6.2.16 Conduct a final warranty review.
- 6.2.17 Confirm:
  - .1 Building permit issued;
  - .2 Notice of project with the Workplace Compensation Board (WCB);
  - .3 Relevant inspection agencies notified;
  - .4 Negotiate / finalize occupancy permit with authorities having jurisdiction;
  - .5 Contractor to submit and pay for occupancy permit; fees for permit to be handled as a disbursement

### **RS 6.3 DELIVERABLES**

- 6.3.1 Written reports from site visits including persons involved,
- 6.3.2 Written reports on the progress of the work and the cost of the project at the end of each month with progress claims,
- 6.3.3 Additional detail drawings when required to clarify, interpret or supplement the Construction Documents,
- 6.3.4 Post contract drawings,
- 6.3.5 Interim or Final certificates,
- 6.3.6 Debrief of Commissioning activities outlining the commissioning process, major activities, and lessons learned from this project,
- 6.3.7 Finalize the Systems Operation Manual and O&M Manual to reflect as-commissioned operation and maintenance of each building system,
- 6.3.8 Finalize the Building Operation and Maintenance Manual to reflect as-commissioned operation and maintenance of each building system,
- 6.3.9 As-built records and As-Built specifications including sub set pathways and service infrastructure locations for BCC: Information Services and Security,
- 6.3.10 Warranty deficiency list,
- 6.3.11 Update Project Log tracking all approved major decisions including those affecting changes to project scope, budget and schedule,
- 6.3.12 Report on Final Warranty Review,
- 6.3.13 Prepare an integrated 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.

### **RS 6.4 DETAILS**

- 6.4.1 Construction Meetings
  - .1 Immediately after contract award, arrange a briefing meeting with the General Contractor (GC), and the RCMP Departmental Representative.
  - .2 Prepare minutes of the meeting and distribute copies to all participants and to other persons agreed upon with the Departmental Representative.



- .3 In consultation with the General Contractor and the RCMP Departmental Representative, call job meetings as frequently as required, commencing with the construction-briefing meeting.
  - .4 Prepare minutes of the meetings and distribute copies to all participants.
- 6.4.2 Project Schedule
- .1 As soon as possible after contract award, obtain Project Schedule from the General Contractor. Schedule to include:
    - .1 All construction activities
    - .2 Schedule of delivery requirements for BCC Information Services, Security to be integrated into base building
    - .3 All related works
    - .4 Detailed commissioning component shown separately,
  - .2 Review the construction schedule, identify conflicts and make recommendations on options to reduce timeline where possible.
  - .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.
  - .4 Keep accurate records of causes of delays.
  - .5 Make every effort to assist the Contractor(s) to avoid delays.
  - .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.
- 6.4.3 Time Extensions
- .1 Only the Contract authority may authorize any request for Time Extensions. Authorization must be issued in writing.
- 6.4.4 Cost Breakdown
- .1 Obtain from the Contractor(s) detail cost breakdown on forms approved by the RCMP Departmental Representative and submit to the RCMP Departmental Representative, with Progress Claims.
- 6.4.5 Labour Requirements
- .1 The Contractor(s) is/are bound by the Contract to maintain competent and suitable workmen on the project and to comply with the Canada Department of Labour - Labour Conditions.
  - .2 Inform the RCMP Departmental Representative, of any labour situations that appear to require corrective action.
  - .3 The Consultant shall ensure that a copy of the Labour Conditions for the Contract is posted in a conspicuous place on-site.
- 6.4.6 Bylaw Compliance
- .1 Ensure that construction complies with applicable bylaws and regulations.
- 6.4.7 Construction Safety
- .1 Construction safety is the responsibility of the Constructor.
  - .2 Monitor construction safety programs and practices on site and advise the Departmental Representative of issues of non-compliance.
  - .3 At minimum compliance with safety legislation and regulations from the following are mandatory:
    - .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.
    - .2 Fire safety provisions during construction must comply with Federal regulations.
    - .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.

- .4 Ensure the Contractor(s) is/are mandated to provide all required coordination, isolation, protection and reinstatement of the fire protection and suppression systems throughout construction.
- .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.

#### 6.4.8 Site Visits

- .1 Provide construction review services.
- .2 Ensure compliance with contract documents.
- .3 Provide services of qualified personnel who are fully knowledgeable with technical and administrative requirements of project.
- .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.
- .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 Inspect materials and prefabricated assemblies and components at their source or assembly plant, as necessary for the progress of the project.
- .7 Any directions, clarifications or deficiency list shall be issued in writing to the Contract authority and the RCMP Departmental Representative.
- .8 Provide clarifications on Plans and Specifications or site conditions as required in order that project not be delayed.

#### 6.4.9 Progress Reports

- .1 Report to the Contract authority and the Departmental representative regularly on the progress of the work. Submit monthly reports.

#### 6.4.10 Work Measurement

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

#### 6.4.11 Detail Drawings

- .1 Provide for the Contract authority information, any additional detail drawings as and when required to properly clarify or interpret the contract documents.

#### 6.4.12 Shop Drawings

- .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.
- .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.
- .3 Verify the number of copies of shop drawings required. Consider additional copies for RCMP review.
- .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).



- .5 Expedite the processing of Shop Drawings.
  - .6 All equipment must be CSA approved, or CSA equivalent. In the case of equivalency, provide letters of approval for use in Canada.
- 6.4.13 Inspection and Testing
- .1 Provide the Departmental Representative with recommended list of tests to be undertaken, including on-site and factory testing.
  - .2 Ensure all testing is detailed within Commissioning Plan.
  - .3 When contract is awarded, assist the Departmental Representative and the Contractor in briefing testing firm on required services, distribution of reports, communication lines.
  - .4 Attend acoustic tests conducted by third party.
  - .5 Witness all factory and on-site testing, including testing during off-hours.
  - .6 Review all test reports and take necessary action with the Contractor(s) when work fails to comply with contract.
  - .7 Immediately notify the Departmental Representative if tests fail to meet project requirements and when corrective work will affect schedule.
  - .8 Assist the Departmental Representative, in evaluating testing firm's invoices for services performed.
  - .9 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.
  - .10 The Contractor will be required to obtain approvals before proceeding with construction of each sample mock-up and model area.
  - .11 Coordinate with the RCMP Security subject matter experts who will inspect and ensure acceptability of all aspects of security during construction.
- 6.4.14 Training
- .1 Prior to tender, provide the RCMP Departmental Representative, with recommended list of training to be undertaken.
  - .2 Ensure all training is detailed within the Commissioning Plan.
- 6.4.15 Construction Changes
- .1 The Consultant does not have authority to change the work or the price of any Contract(s).
  - .2 Changes, which affect cost or design concept, must be approved by the Contract Authority.
  - .3 Upon RCMP approval, obtain quotations from the Contractor(s) in detail. Review prices and forward recommendations to the Departmental Representative promptly.
  - .4 The Contract Authority will issue Consultant-prepared Change Orders to the Contractor(s), with copy to the Departmental Representative and the Consultant.
  - .5 All changes, including those not affecting the cost of the project, must be covered by Change Orders.
- 6.4.16 General Contractor Progress Claims
- .1 Each month the Contractor(s) submits a progress claim for work and materials as required in the Construction Contract(s).
  - .2 The claims are made by completing the following forms where applicable:
    - .1. Request for Progress Payment,
    - .2. Cost Breakdown for Fixed Price Contract,
    - .3. Copy of good standing with WSIB,
    - .4. Statutory Declaration Progress Claim.
  - .3 Review and sign designated forms and promptly forward claims to the RCMP Departmental Representative for processing.





- .4 Submit with each progress claim:
  - .1. Updated schedule of the progress of the work.
  - .2. Photographs of the progress of the work.
- 6.4.17 Materials On-Site
  - .1 The Contractor(s) may claim for payment of material on-site but not incorporated in work.
  - .2 Material must be stored in a secure place designated by the RCMP Departmental Representative.
  - .3 Detailed list of materials with supplier's invoice showing price of each item must accompany claim; Consultant shall check and verify the list.
  - .4 Items shall be listed separately on the Detail Sheet after the breakdown list and total.
  - .5 As material is incorporated in the work, the cost must be added to the appropriate Detail item and removed from the material list.
- 6.4.18 Acceptance Board
  - .1 Inform the Departmental Representative when satisfied that the project is substantially completed.
  - .2 The Consultant shall ensure that his representative, sub-consultant representative, Contractor(s) and major sub-trades representatives shall form part of the Project Acceptance Board and attend all meetings as organized by the RCMP Departmental Representative.
- 6.4.19 Interim Inspection
  - .1 The Acceptance Board shall inspect the work and list all unacceptable and incomplete work on a designated form.
  - .2 The Board shall accept the project from the Contractor(s) subject to the deficiencies and uncompleted work listed and priced.
  - .3 The Contractor(s) will be required to provide a work plan of actions and schedule to correct all deficiencies.
  - .4 The Consultant shall coordinate with the RCMP Departmental Representative to monitor, inspect and report on the progress of deficiencies corrections.
- 6.4.20 Interim Certificates
  - .1 Payment requires completion and signing, by the parties concerned, of the following documents:
    - .1. Interim Certificate of Completion,
    - .2. Cost Breakdown for Fixed Price Contract,
    - .3. Cost Breakdown for Unit or Combined Price Contract,
    - .4. Inspection and Acceptance,
    - .5. Statutory Declaration Interim Certificate of Completion,
    - .6. Workplace Safety and Insurance Board Certificate.
  - .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.
- 6.4.21 Furniture / Equipment Delivery and Installation
  - .1 Delivery and installation of Furniture / Equipment to be coordinated by Consultant in consultation with the RCMP representative and suppliers.
  - .2 Final delivery dates to be confirmed with the RCMP.
  - .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.



- .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.
  - .5 Consultant to oversee installation of Furniture / Equipment by supplier.
  - .6 Consultant to provide deficiency list to the RCMP Departmental Representative for each floor of Furniture / Equipment delivered.
- 6.4.22 Building Occupation
- .1 The RCMP may occupy the building after the date of acceptance of the building by the Acceptance Board. The acceptance date is normally that of the Interim Certificate issued to the Contractor(s).
- 6.4.23 Operation and Maintenance Data Manual
- .1 Operation and Maintenance Data Manual:
  - .2 One Electronic of all volumes and Four (4) hard copy sets of each volume produced by Contractor(s) in accordance with project specification and verified for completeness, relevance and format by the Architect, Mechanic and Electrical Engineer and submitted to the RCMP Departmental Representative prior to interim acceptance or actual start of operation and instruction period, whichever occurs sooner.
  - .3 Prior to submission to the RCMP Departmental Representative, provide written comment in detail indicating the acceptability of all manuals.
  - .4 The Contractor(s) shall retain one (1) copy of each volume for his record and use during the instruction period.
- 6.4.24 Instruction of Operating Personnel
- .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.
- 6.4.25 Final Inspection
- .1 Inform Contract Authority when satisfied that all work under the contract has been completed, including the deficiency items. Inspection and Acceptance as a result of the Interim Inspection.
  - .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.
- 6.4.26 Final Certificate
- .1 The final payment requires completion and signing, by the parties concerned, of the following documents:
    - .1. Final Certificate of Completion,
    - .2. Occupancy Permit
    - .3. Cost Breakdown
    - .4. Inspection and Acceptance,
    - .5. Statutory Declaration Final Certificate of Completion,
    - .6. Workmen's Compensation Clearance Certificate,
    - .7. Electrical Inspection Certificate.
  - .2 Verify that all items are correctly stated and ensure that completed documents and any supporting documents are furnished to the RCMP Departmental Representative for processing.
- 6.4.27 Take-over
- .1 The official take-over of the project or parts of the project, from the Contractor is established by the RCMP Project Team which includes the Consultant and the RCMP. The date of Interim Certificate of Completion signifies commencement of the 12-month warranty period for work



- completed on the date of each certificate in accordance with the General Conditions of the Contract.
- .2 Provide 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.
- 6.4.28 As-Built and Record Drawings and As-Built Specifications.
- .1 Following the take-over, obtain as-built marked-up hard copy from the Contractor(s).
  - .2 Show 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.
  - .3 Verify at each progress payment that the Contractor(s) has/have accurately recorded information on the site as-built set of construction documents.
  - .4 Indicate PMSS / MMS numbers for each piece of mechanical and electrical equipment on each drawing.
  - .5 Check and verify all As-Built records for completeness and accuracy and submit to the RCMP Departmental.
  - .6 Produce Record Drawings by incorporating final As-Built-information into project drawings. Delivered electronically in both PDF and DWG format
  - .7 Update the specification to reflect As-Built-information.
  - .8 Submit a comprehensive consolidated final package of Record Drawings in and As-Built Specifications in number and format required by the Contract within twelve (12) weeks of the Final Certificate.
  - .9 Provide a complete set of final shop drawings in hard copy and electronic format.
  - .10 Produce a building maintenance guide 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 the use of detachment staff as service personnel are not readily available to provide facility maintenance.

## **RS 7 COMMISSIONING**

### **RS 7.1 COMMISSIONING OBJECTIVES**

- 7.1.1 The objectives of commissioning are:
- .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.
  - .2 Develop a Building Operation and Maintenance (BOM) manual
  - .3 To document the operational, maintenance and building management requirements
  - .4 To minimize O&M costs through the careful selection of design solutions (for economy, reliability, durability, accessibility, maintainability), construction materials, installation practices, performance verification procedures
  - .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 To define responsibility areas for meeting these operational requirements in the contract documents and include a process to demonstrate compliance.
- .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.
- .8 To ensure that the commissioning process is implemented and documented according to the approved Commissioning Plan and in accordance with the Commissioning Schedule.
- .9 To verify and demonstrate that all systems operate consistently at peak efficiencies, under all normal load conditions, and within the specified energy budget.
- .10 To provide comprehensive documentation of the operational, maintenance and building management
- .11 To implement a comprehensive training program.
- .12 To transfer the completed works to qualified facility operators verifying that the building systems operate consistently at peak efficiencies, under all normal load conditions, and within the specified energy budget.

## **RS 7.2 GENERAL DESCRIPTION OF COMMISSIONING**

7.2.1 The RCMP utilizes PSPC commissioning practices. 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:

- .1 PSPC Commissioning Manual (CP.1)
- .2 CP.2: Commissioning Glossary (forms Appendix B of CP.1)
- .3 CP.3: Guide to development of the Commissioning Plan
- .4 CP.4: Guide to the development of Building Management Manuals
- .5 CP.5: Guide to preparation of Training Plans
- .6 CP.7: Commissioning for Facilities Management and Operation
- .7 CP.8: Guide to the preparation of Commissioning Reports
- .8 CP.9: Guide to the development and use of Installation/Start-up Check Lists
- .9 CP.10: Guide to the development and use of Report Forms and Schematics
- .10 CP.11: Guide to the preparation of Commissioning Briefs
- .11 CP.12: Guide to the development and use of Commissioning Specifications
- .12 CP.13: Facility Maintenance Policy, Guidelines and Requirements

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

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

7.2.4 The Designer must deliver concise and comprehensive information and reports on commissioning to the RCMP.

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

## **RS 7.3 ROLES AND RESPONSIBILITIES:**

7.3.1 The RCMP Departmental Representative:



- .1 Has overall responsibility for managing the project and delivering the project to the Project Leader on time and on budget. Upon completion, the Departmental Representative hands the facility over to the Project Leader.

7.3.2 The Consultant shall:

- .1 Establish Design Criteria, functional and operational requirements, if not already established in the RFP or Project Brief,
- .2 Establish a Design Energy Budget and, if necessary, revise and update with each submission,
- .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.
- .4 Prepare a preliminary Commissioning Budget and revise and update with each submission.
- .5 Prepare a preliminary Commissioning Plan
- .6 Prepare commissioning specifications for components, equipment, systems and integrated systems and incorporate same into the construction specifications,
- .7 Prepare a complete maintenance management documentation, to be sufficiently complete for use during training, and to include:
  - .1. An explanation of the purpose of the facilities,
  - .2. An outline of the design intent of all systems
  - .3. A narrative description of the project's conceptual framework,
  - .4. Documentation of all design decisions made throughout the project,
  - .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. All other relevant documentation
- .8 Plan the commissioning and performance verification (PV) activities, processes and their output, including development of project-specific:
  - .1. Installation / Start-up Check Lists
  - .2. Product Information (PI) Report Forms and Performance Verification (PV) Report Forms, and
  - .3. Design data to PI and PV report forms
- .9 Prepare a detailed Training plan
- .10 Incorporate PSPC MMS identification codes to all components, equipment and systems into all working documents;
- .11 Review the Contractor's detailed commissioning schedule for components, equipment, systems, and integrated systems. (PV tests will be performed by the Contractor).
- .12 Identify Contractor and subcontractor commissioning, PV and testing responsibilities,
- .13 Review shop drawings and product data and accompanying Product Information (PI) as completed by the Contractor,
- .14 Monitor commissioning activities, provide quality control reports to the RCMP throughout the construction, commissioning and operational phases of the work, including:
  - .1 Inspection and verification of as installed components, sub system and systems on a regular basis during construction
  - .2 Witnessing tests,
  - .3 Reviewing and verifying testing, adjusting and balancing (TAB) reports,



- .4 Reviewing and verifying Performance Verification (PV) Reports
- .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.
- .15 Participate in the Training Plan by providing training on design philosophy, design intent and systems designs,
- .16 Witness and certify deferred tests, commissioning activities, PV, review and accept reports,
- .17 Identify and verify the rectification of all outstanding deficiencies,
- .18 Assist in the resolution of all issues relating to commissioning,
- .19 Prepare "as-built" documentation (plans and specifications) as described elsewhere in the RFP or Project Brief,
- .20 Assist in fine-tuning of systems and equipment as required during the warranty period,
- .21 Assist in systems checks and environmental checks during the warranty period,
- .22 Participate in warranty inspections and production of warranty inspection reports and address all warranty issues that may arise,
- .23 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,
- .24 Recommend acceptance of the completed project,
- .25 Assist the RCMP Departmental Representative in the preparation of a debriefing (Evaluation) report. To include, but not necessarily be limited to:
  - .1. A building evaluation summary with recommendations,
  - .2. Lessons learned from the project.

7.3.3 Consultant's Commissioning Coordinator:

- .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.

## **RS 7.4 OCCUPANCY REQUIREMENTS**

7.4.1 Identify facility management requirements, including move-in procedures; staffing; signage; and safety and accessibility for persons with disabilities.

7.4.2 RCMP occupancy requirements include consideration of the need for and implications of:

- .1 Early, late and/or phased completion, take-over, acceptance and occupancy, including the effects upon the User's present accommodation (such as early de-commissioning, need for extension),
- .2 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,
- .3 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,



- .4 Post-occupancy commissioning activities during Operation, which will often be necessary for certain systems and equipment under these circumstances.

## **RS 7.5 LIFE CYCLE COSTING CRITERIA**

- 7.5.1 When developing life cycle cost analyses for each option, use the following criteria:
- .1 20 years to next re-fit,
  - .2 40 Year investment horizon,
  - .3 Costs of utilities (e.g. hot water heating, chilled water, electricity), fuel consumption, potable water and sewage),
  - .4 Reliability, durability, operability, maintainability, accessibility and serviceability,
  - .5 Systems selection and staffing in response to annual operating cost criteria.

## **RS 7.6 TRAINING**

- 7.6.1 In consultation with the RCMP, monitor and validate the training plan prepared by the General Contractor for the training of the Facility Management personnel, User (where deemed necessary) and operations and maintenance staff.
- 7.6.2 Training shall be in English.
- 7.6.3 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.
- 7.6.4 Training shall enhance monitoring and diagnostic capabilities and result in more efficient, cost-effective operation of the facility.
- 7.6.5 The training plan shall be in accordance with the requirements of CP.5 Guide to preparation of TRAINING PLANS. Training plans shall be reviewed, revised, updated and resubmitted as required.
- 7.6.6 Training must clearly relay:
- .1 A clear understanding of the intent of the design,
  - .2 All limitations of the systems,
  - .3 Reasons for the choice of systems.
- 7.6.7 Coordinate the dates of all training sessions with the Departmental Representative. Ensure the training plan is updated by the General Contractor as required reflecting the project schedule. The Departmental Representative will organize the location where training is to take place.
- 7.6.8 The training plan shall recognize both short-term and long-term requirements.

## **RS 7.7 CORRECTION OF DEFICIENCIES**

- 7.7.1 The Consultant, in consultation with the RCMP Department Representative, shall:
- .1 Instruct the contractor to correct all the deficiencies identified and recorded during the performance verification,
  - .2 Provide solutions during the Performance Verification (PV) process with respect to the variances from the design parameters,
  - .3 Monitor and validate adjustments or alterations to the systems required to achieve the design parameters. This shall include re-testing,
  - .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,
  - .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.

## **RS 7.8 FACILITY MAINTENANCE POLICY, GUIDELINES AND REQUIREMENTS**

7.8.1 For full details, the Consultant shall refer to CP.13: Facility Maintenance Policy, Guidelines and Requirements.

## **RS 7.9 ACCEPTANCE OF THE PROJECT**

7.9.1 The project will be accepted and the Interim Certificate of Completion will be issued only after:

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

## **RS 7.10 COMMISSIONING DOCUMENTATION**

7.10.1 General

- .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.
- .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.
- .3 Produce in accordance with the requirements of the *PSPC Commissioning Manual (CP.1)* in consultation with the RCMP as appropriate.
- .4 Comply with all requirements contained in the RFP relating to electronic production of commissioning documentation.

7.10.2 Details

- .1 Commissioning documentation shall include:
  - .24 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.
  - .25 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*.
- .2 Commissioning specifications.
- .26 For details of requirements, refer to CP.12 - Guide to the development and Use of Commissioning Specifications
- .3 Commissioning Schedule
- .27 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.
- .4 Training Plans. Refer to *CP.5 Guide to the preparation of Training Plans*. For more details refer to relevant paragraph below.
- .5 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 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*.
- .7 Performance Verification (PV) report forms 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*.
- .8 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:
  - .1. Amendments to show all measured and approved results of PV procedures, settings of all controls, systems and equipment as finally set upon completion of commissioning,
  - .2. Project specifications amended by insertion of addenda, change notices,
  - .3. Flow diagrams and piping schematics as installed at each major item of equipment complete with valves controllers, identified with numbered tags.
  - .4. "As-built" drawings and specifications to be completed prior to, and available for, pre-start-up inspections
- 7.10.3 Occupants' comment / complaints audit system:
  - .1 Use during the Warranty Period.
- 7.10.4 TAB and commissioning reports:
  - .1 Provide in accordance with CP.8: Guide to the preparation of COMMISSIONING REPORTS
- 7.10.5 Final evaluation report:
  - .1 Provide in accordance with CP.8: Guide to the preparation of COMMISSIONING REPORTS.
- 7.10.6 Any other documents and reports

## **RS 7.11 COMMISSIONING DELIVERABLES:**

- 7.11.1 Conceptual Design Report:
  - .1 First technical submission by the Consultant shall include the following:
    - .1. From the commissioning perspective, the Conceptual Design Report shall include:
      - .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.
      - .2 Design criteria, Design intents,
    - .2 O&M Report. To include:
      - .1. O&M budget including projected utility consumption



- .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),
  - .3. Cleaning requirements (janitor closets, receptacle for vacuum, equipment supply and storage),
  - .4. Other O&M requirements including These shall include all requirements associated with O&M aspects including, but not necessarily limited to:
    - .1 Operating standards and operator requirements,
    - .2 Air Balancing report and performance verification of HVAC equipment
    - .3 Equipment and system reliability requirements,
    - .4 Delivery, content and form of O&M documentation,
    - .5 Tools, equipment, spare parts and maintenance materials,
    - .6 Emergency procedures,
    - .7 Identification and other similar needs,
    - .8 Waste management requirements,
    - .9 Preventive maintenance tasks.
  - .3 Further information may be obtained from CP.7: "Commissioning for Facility Management and Operation".
  - .4 Comprehensive documentation, design information/data and comments so as to allow the Commissioning Manager to:
    - .1. Prepare service and staffing contracts,
    - .2. Prepare a list of spare parts, special tools, maintenance materials and other special equipment to be provided by the Contractor,
  - .5 Capacity of the facility to change in response to program changes over its life expectancy,
  - .6 Requirements for operation and maintenance of the project over its life expectancy,
  - .7 "Phased" construction program,
  - .8 Assessment of staffing and skill requirements to operate and maintain the project,
  - .9 Preliminary commissioning plan
  - .10 Sample of PI/PV report forms and tracking software,
  - .11 Preliminary building management manual,
  - .12 Define project archives and how these archives will be managed, updated, and submitted at the end of the project.
- 7.11.2 33% submission:
- .1 Extent of commissioning determined,
  - .2 Factory and on-site tests of components, sub-systems, systems and integrated systems during construction, installation and commissioning determined,
  - .3 Outline commissioning specifications using PSPC generic commissioning specifications plus outline project-specific commissioning specifications,
  - .4 Updated Commissioning Plan,
  - .5 Updated Building management manual,
  - .6 Updated Design Intent Document,
  - .7 Updated O&M Budget,
  - .8 Outline PI and PV forms. Provide for all components, equipment and systems to be tested,
  - .9 Maintenance management system (MMS) codes identified for all equipment shown on the construction documents,



- .10 Preliminary Training Plan
- 7.11.3 66% submission:
  - .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,
  - .2 Commissioning activities to be deferred to Operational Phase and Warranty Period identified,
  - .3 Detailed commissioning specifications,
  - .4 Updated Commissioning Plan,
  - .5 Detailed Building management manual,
  - .6 Updated Design Intent Document,
  - .7 Updated O&M Budget,
  - .8 Updated Training Plan,
  - .9 Maintenance management system (MMS) codes identified for all equipment shown on the construction documents, schematics and line diagrams,
  - .10 Complete PI and PV forms. Provide for all components, equipment and systems to be tested.
- 7.11.4 99% submission:
  - .1 Commissioning specifications integrated into project specifications,
  - .2 90% Commissioning plan,
  - .3 90% complete Building management manual,
  - .4 90% Design Intent Document detailing each building system, including all engineering calculations,
  - .5 Final O&M Budget,
  - .6 Maintenance management System (MMS) codes identifiers shown on the construction documents and indicated on each PI and PV form,
  - .7 100% Training Plan, indicating scope and duration of training,
  - .8 Design information added to PI forms
- 7.11.5 100% submission:
  - .1 This submission incorporates all revisions required by the review of the 99% submission,
  - .2 Updated Commissioning Plan, making it approx. 95% complete.
  - .3 Update the Design Intent Document to reflect any changes from the 99% submission.

## **RS 7.12 CONSTRUCTION AND COMMISSIONING:**

- 7.12.1 General:
  - .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,*
  - .2 In consultation with the Contractor, review/select the test instruments to be used and instrument calibration,
  - .3 Incorporate relevant data from approved shop drawings and installed component data immediately upon approval,
  - .4 Review contractors compliance with the contract documents,
  - .5 Witness and certify tests, including those tests conducted before concealment and start up,



- .6 Verify that each system is completed, safe to operate and ready for start-up,
  - .7 Review all test reports and take necessary action with Contractor when work fails to comply with contract,
  - .8 Immediately notify Departmental Representative when tests fail to meet project requirements and when corrective work will affect schedule,
  - .9 Ensure that all deficiencies are rectified and acknowledge that the installation of components and systems is ready for the commissioning phase,
  - .10 Assist Departmental Representative in evaluating testing firm's invoices for services performed,
  - .11 Review all maintenance management nomenclature, devices and submissions prepared by the contractor. Ensure on site implementation and tagging of maintenance management.
- 7.12.2 Manuals and reports (Refer to CP.4 - Guide to the preparation of Building Management Manuals):
- .1 Four (4) weeks before training is due to commence, assemble, review and approve:
  - .2 All commissioning documentation, including PV documentation, procedures and expected output.
  - .3 In consultation with the Contractor, review/select the test instruments to be used and instrument calibration.
  - .4 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*).
  - .5 Finalize the Operating and Maintenance (O&M) Manual:
    - .1. Verify, and certify, completeness, relevance and accuracy.
    - .2. Produce 4 sets 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*).
    - .3. Ensure Contractor assembles all certified tests results and incorporates into the Maintenance manuals.
- 7.12.3 Training: Implement the Training Plan.
- .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:
    - .1. An understanding of the intent of the design.
    - .2. Limitations of the systems.
    - .3. Reasons for the choice of systems.
  - .2 Coordinate the date(s) of the training session(s) with the Departmental Representative.
  - .3 Departmental Representative to organize the location and provide the lists of participants.
  - .4 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.
  - .5 Make necessary arrangement for site O&M staff familiarization during construction/ installation.



- .6 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.
  - .7 Contractor to provide training sessions on the operations and maintenance of components, equipment, sub-systems, systems and integrated systems.
  - .8 Record the time, date and subject matter of training sessions as they occur. Indicate all those who are present at each training session.
- 7.12.4 Spare parts:
- .1 Finalize the delivery, inventory and storage of all specified spare parts, special tools, and maintenance materials.
- 7.12.5 Component, sub-systems, systems, and integrated system performance verification (PV)
- .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.
  - .2 Certify and date all PV procedures and test results.
  - .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.
  - .4 Provide solutions during the PV process with respect to the variances from the design parameters.
  - .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 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.
  - .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.
- 7.12.6 Design Intent document and building operational and maintenance manual:
- .1 Update the Design Intent Document and BOM manual. Immediately prior to the issuance of the Interim Certificate of Acceptance develop this document so as to become the complete "Building Operational and Maintenance Manual 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, Fire protection Manual.

## **RS 8 ESTIMATING AND COST PLANNING**

### **RS 8.1 COST SPECIALIST**

- 8.1.1 Delivering this project on time and within budget is a high priority. A fully qualified cost estimating, cost planning and cost control Team, referred to herein as the Cost 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.

- 8.1.2 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.

## **RS 8.2 SCOPE OF SERVICES**

- 8.2.1 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.
- 8.2.2 The Consultant's Cost Specialist shall provide to the RCMP and the Consultant, a cost advising, and cost monitoring/reporting service.
- 8.2.3 The Consultant's Cost Specialist shall attend key project meetings throughout the design phases and be prepared to present and defend the estimates directly to the Departmental Representative.

## **RS 8.3 SERVICES - BASIC ACTIVITIES**

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

## **RS 8.4 REPORTING**

- 8.4.1 Milestone Reporting
- .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.
  - .2 In addition, the Cost Specialist shall fully coordinate all estimates with schedules.
  - .3 A typical Milestone Report will contain:
    - .1. Project Estimate Summary;
    - .2. Elemental Estimate Summary;
    - .3. Estimate Back-Up Detail;
    - .4. Basis for escalation, inflation and contingency calculations;
    - .5. Detailed measurement and pricing;
  - .4 Narrative:
    - .1. Outline description of estimate basis;
    - .2. Description of information obtained and used in the estimate including the date received;
    - .3. Listing of notable inclusions;
    - .4. Listing of notable exclusions; listing of items/issues carrying significant risk;
    - .5. Notes on past and forecast Cost Specialist activity;
  - .5 Estimate Reconciliation:



- .1. With last submission;
- .2. With Construction Cost Plan;
- .6 Any other relevant information.

#### 8.4.2 Exception Report

- .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.
- .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.
- .3 The Cost Specialist with the Consultant Team shall submit to the RCMP proposed alternative design solutions and revise the most recent monthly estimate.
- .4 An Exception Report will include sufficient description and cost detail to clearly identify:
  - .1. Scope Change: Identifying the nature, reason and total cost impact of all identified and potential project scope changes affecting Construction Cost Estimate.
  - .2. Cost Over-runs and Under-runs: Identifying the nature, the reason and the total cost impact of all identified and potential cost variations.
  - .3. Options Enabling a Return to Construction Cost Estimate: Identifying the nature and potential cost effects of all identified options proposed to return the project within Construction Cost Estimate.

## **RS 8.5 SUBMISSION STANDARDS**

### 8.5.1 Summary Format

- .1 Elemental Analysis: All estimates shall be summarized in an agreed and consistent Elemental format. Several variations in format may be acceptable to the RCMP (by discussion) but those following the ASTM (USA), CIQS (CDN), CSI Unifomat II (USA) or BCIS (UK) formats are preferred.
- .2 Trade Summary: Where a trade summary is required, those following the Masterformat are preferred, except where local practice provides a more suitable alternative.
- .3 Project Cost Subdivision: The estimate shall isolate the costs of each 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:
  - .1. New Construction including Base building and fit-up;
  - .2. Furniture and equipment
  - .3. IT and Security system infrastructure
  - .4. IT and Security system cabling
  - .5. Site work including civil works, utilities, road works and landscaping

### 8.5.2 Media

- .1 Provide three 3 hard copies of all reports including estimate summaries only and one 1 additional hard copy of the full report including the additional estimate support information to the RCMP.
- .2 One soft copy of the total estimate, summary and support detail shall be provided.

### 8.5.3 Time lag

- .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.

8.5.4 Use of all available information:

- .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.
- .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.

## RS 8.6 TECHNIQUES

8.6.1 The Cost Specialist is required to be familiar with and make use of a broad range of cost techniques, especially the following:

- .1 **Risk Analysis** All construction estimates (except the final pre-tender estimate) shall include and identify design, estimating, inflation escalation and currency exchange allowances as are deemed necessary in light of the current information available. The Cost Specialist shall provide a satisfactory explanation of the level and/or amount of all such sums included within any estimate.
- .2 **Life Cycle Costing** In advising the Consultant of the cost information for alternative materials, methods and systems, it is necessary that the Cost Specialist uses all available information to ensure that a complete cost picture is made available, upon which design and construction decisions will be made.
- .3 **Continuing Estimate Process** A process of continual adjustment of previous estimates may be used in place of total re-measurement at each milestone reporting point. This is acceptable, provided that at each monthly reporting point a full and up-to-date Elemental Cost Summary is provided and that at each milestone reporting point this Elemental Cost Summary is supported by complete, detailed, standalone back-up/support documentation, as previously described.
- .4 **Project Research** The Cost Specialist shall visit the proposed or alternative construction sites to become familiar with site conditions, site access, analyze local labour and material supply conditions, local bidding practices and competition to establish pricing levels. A written report detailing this reconnaissance activity is expected.

## RS 8.7 SERVICES - SPECIFIC ACTIVITIES

8.7.1 Project Analysis Stage

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

8.7.2 Concept Design

- .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.

8.7.3 Design Development

- .1 Upon completion of design development prepares 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.





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

#### 8.7.4 Contract Documents

- .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.
- .2 Provide a Class "B" estimate with the 66% construction document submission.
- .3 Upon acceptance, the Class "B" estimate shall become the Construction Cost Plan.

#### 8.7.5 Pre-Tender

- .1 Upon completion of the contract documents a pre-tender Class "A" cost estimate will be prepared using 100% measured quantities.
- .2 Provide a trade breakdown of the pre-tender estimate for use in reviewing the submitted bids and the successful Contractor's estimate breakdown.
- .3 Upon acceptance, the Class "A" estimate shall become the Construction Cost Plan.

#### 8.7.6 Tender Stage

- .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.
- .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.
- .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.
- .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.

#### 8.7.7 Cost Specialist Services through Construction

- .1 During construction, the Cost Specialist shall assist the Construction Team with cost advice.
- .2 Such activity may encompass the following activities:
  - .1. Evaluation of change orders;
  - .2. Evaluation of claims;
  - .3. Evaluation of work completed;
  - .4. Evaluation of cash flow.

#### 8.7.8 Post Contract

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

### RS 8.8 RESPONSIBILITIES TO THE RCMP

- 8.8.1 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.

- .1 No Action Abrogates Consultant's Responsibilities
- .2 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.
- .3 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.