

## **PART 1 - GENERAL**

### **1.1 DESCRIPTION OF WORK**

The work under this contract is divided into two distinct parts. The first part is to replace the existing septic system (Ecoflo) present in the dock, adjacent to the waiting booth. The second part is to connect a gravity transfer pipe from the boat's wastewater discharge to the new treatment system.

All work covered by this contract include, but are not limited to:

#### **Part 1 : Treatment system**

- .1 Dismantling of treated wood floor in the area of the treatment system;
- .2 Dismantling of the lagoon ceiling. Consists of remove the soil cover of the basin, as well as the looks of access to the pool;
- .3 Dismantling of the septic tank located within the lagoon. Consists in undo two (2) walls adjacent to the lagoon walls, and the separator present inside the septic tank wall;
- .4 Cleaning the lagoon;
- .5 Implementation of poured concrete walls inside the lagoon for the formation of the septic tank and the biological reactor;
- .6 Implementation of the concrete slab covering the lagoon;
- .7 Replacement of pumps from the pumping station present in the lagoon;
- .8 Dismantling of three (3) boxes Ecoflo treatment system present in the dock, and available in a designated location to receive contaminated by sewage from domestic sources;
- .9 Installation of pipes to transfer water, including the conduct of outfall of treated water to the river;
- .10 Drilling of concrete retaining wall (north side of the dock) for the passage of the pipe outfall;
- .11 Filling pipes and the space left after the dismantling of the Ecoflo boxes;
- .12 Recovery of the treatment basin (basin renowned stabilization) using earth fill removed during decommissioning;
- .13 Replacing the treated wood floor, as well as adding and moving cover treated wood giving access to different views of the treatment tank;
- .14 Installation of equipment for biological treatment;
- .15 Installation of a new building that will receive certain technical processing equipment;
- .16 Installing an additional vent connected to the processing system and emerging on the roof;
- .17 Electrical connection of the treatment system equipment to the reception booth electrical power, including the technical building;
- .18 Connecting the treated water discharge to the technical building and the outfall pipe;
- .19 Correction of asphalt and concrete curb removed for the need for the work;
- .20 Start-up and training.

**Part 2 : Cruise ship transfer pipe**

- .1 Dismantling of treated wood floor located along the booth between the sector 'wastewater treatment', and the paved section of the dock, boat dock side section;
- .2 Installation of a transfer case that allow emptying boat's wastewater tanks;
- .3 Excavation of a trench for the passage of the sewage pipe gravity from the boat's wastewater discharge to the wastewater treatment system (between the transfer case and the treatment system);
- .4 Installation of the boat's wastewater gravity transfer pipe;
- .5 Connecting the transfer pipe to the septic tank;
- .6 Recovery of the transfer pipe;
- .7 Replacing the treated wood floor.

**1.2 REFERENCES**

Plans and specifications.

**1.3 USE OF PREMISES BY CONTRACTOR**

- .1 Coordinate the use of the premises as directed by the Engineer;
- .2 Find the storage areas needed to carry out the work under this contract, and pay the cost if required;
- .3 The Contractor shall ensure, to the federal authorities, spaces that can be attributed to him for purposes of the work;
- .4 The contractor will work with a work schedule set for the 2014 season. Refer to Section 01 32 16.07 - Construction Progress Schedule - for more details.

**END OF SECTION**

**Part 1            General**

**1.1                DEFINITIONS**

- .1      Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2      Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3      Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4      Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5      Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6      Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7      Milestone: significant event in project, usually completion of major deliverable.
- .8      Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9      Project Planning, Monitoring and Control System: overall system operated by the Departmental Representative to enable monitoring of project work in relation to established milestones.

**1.2                REQUIREMENTS**

- .1      Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2      Plan to complete Work in accordance with prescribed milestones and time frame.
- .3      Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
- .4      Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

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**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to the Departmental Representative 5 days within working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to the Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

**1.4 PROJECT MILESTONES**

- .1 Works must be completed (for the purpose of the Certificate of Substantial Performance (Interim) and commissioning of works for the client-owner), no later than 30 working days following the contract award date.

**1.5 MASTER PLAN**

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 The Departmental Representative will review and return revised schedules within 5 working days.
- .3 Revise impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

**1.6 PROJECT SCHEDULE**

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 The detailed implementation schedule must cover the entire duration of the project, from contract award to the final demobilization.  
  
Important to include more elements of construction activities, it must have the dates for the production of shop drawings, data sheets, certificates of compliance, permits, delivery of different materials.

**1.7 PROJECT SCHEDULE REPORTING**

- .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

**1.8 PROJECT MEETINGS**

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

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- .2 Weather related delays with their remedial measures will be discussed and negotiated.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 CONTENT OF THE SECTION**

- .1 Shop drawings and data sheets.
- .2 Product samples
- .3 Certificates.

### **1.2 RELATED SECTIONS**

- .1 Section 01 45 00 - Quality Control.

### **1.3 REFERENCES**

- .1 S/O

### **1.4 CONSIDERATIONS FOR ADMINISTRATIVE NATURE**

- .1 In the shortest possible time and in a predetermined order so as not to delay the execution of the work, submit the required documents to the approval of the Engineer. A delay in this regard cannot constitute a sufficient reason for an extension of time for completion of the work and no such request will be accepted.
- .2 The work for which the filing is required should not be undertaken until the verification of all the documents submitted is complete.
- .3 The data shown on the shop drawings, specifications, data sheets and samples of products must be expressed in metric units.
- .4 When items are not produced or manufactured in metric units or that the characteristics are not given in SI units, the converted values can be accepted.
- .5 Review documents and samples before deliver to the Engineer. Through this diligence, the Contractor confirms that apply to the work requirements have been or will be determined and verified, and that each of the documents and submitted samples was examined and found to comply with the requirements of work and contract documents. Documents and samples will not be stamped, signed, dated and identified in connection with the specific project will be returned without being examined and shall be considered rejected.
- .6 Notify the Engineer in writing at the time of filing and samples, differences that they have with the requirements of the contract documents, and explain the reasons.
- .7 Ensure the accuracy of the measurements taken on site from adjacent structures affected by the work.
- .8 The fact that the documents and samples submitted are reviewed by the Engineer does not release the Contractor from its responsibility to provide complete and accurate and in accordance with the contract documents parts.
- .9 Keep a copy on site of each check document submitted.

## 1.5 SHOP DRAWINGS AND DATA SHEETS

- .1 The term "shop drawings" means drawings, diagrams, illustrations, tables, graphics performance, leaflets and other documentation to be provided by the Contractor to show in detail some of the work in question.
- .2 The shop drawings must indicate the materials to be used and methods of construction, fixing or anchor to use, and they must contain the assembly drawings, details of connections, the relevant explanatory notes and other information necessary to complete the work. When structures or elements are connected to other structures or elements, indicate on the drawings that there have been coordination requirements, regardless of the section under which the works or adjacent elements will be provided and installed. Make references to specifications and plans.
- .3 Allow five days to the Engineer to examine each batch of documents submitted.
- .4 Changes to shop drawings by the Engineer are not supposed to vary the contract price. If this is the case, however, notify the Engineer in writing before beginning work.
- .5 Make changes to shop drawings that are requested by the Engineer, in accordance with the requirements of the contract documents. When submitting the drawings again, notify the Engineer in writing of the changes that were made in addition to those required.
- .6 Documents must carry or indicate the following:
  - .1 The date of preparation and revision dates;
  - .2 The name and number of the project;
  - .3 The name and address of:
    - .1 The subcontractor;
    - .2 The supplier;
    - .3 The manufacturer.
  - .4 The stamp of the Contractor, signed by the authorized representative, stating that the documents submitted are approved, the measures taken on site were tested and complies with all requirements of the contract documents;
  - .5 Relevant details to the relevant portions of work:
    - .1 Materials and manufacturing details;
    - .2 The layout or configuration, with dimensions, including those made locally, as well clearances;
    - .3 Details on installing or adjusting;
    - .4 Characteristics such as power, flow or capacity;
    - .5 Performance characteristics;
    - .6 Reference standards;
    - .7 Operating weight;
    - .8 Links with the adjacent works.
- .7 Distribute copies of shop drawings and data sheets once the Engineer has completed the verification.

- .8 It's possible that the Engineer requires that certain shop drawings are sealed by an engineer member of the Order of Engineers of Quebec.
- .9 Submit three copies of shop drawings specified in the specification sections and according to the reasonable requirements of the Engineer.
- .10 If no shop drawing is required due to the use of a standard product manufacturing, submit 3 copies of the data sheet or the manufacturer's documentation prescribed in the specification sections and as required by the Engineer.
- .11 Remove information that does not apply to the work.
- .12 In addition to current information, provide any additional details that apply to work.
- .13 When the shop drawings have been checked by the Engineer and no error or omission was detected or they contain only minor corrections, a copy is returned, and the work of shaping and installation can then be undertaken. If shop drawings are rejected, the annotated copies are returned and corrected shop drawings must be submitted again before work shaping and installation can be undertaken.
- .14 Review of shop drawings by the Engineer is intended only to verify compliance with the general concept of drawing's data. This review does not mean that the Engineer approves the workshop drawings that the responsibility rests with the Contractor who submits the drawings and does not relieve the Contractor of the obligation to submit complete and accurate drawings and workshops to comply with all the requirements of work and contract documents. Without restricting the generality from the foregoing to be restricted, it's important to note that the Contractor is responsible for the accuracy of dimensions confirmed on site, the supply of information to the techniques of construction and installation and coordination of work done everyone.

## 1.6 PRODUCTS SAMPLES

- .1 Submit three samples of products for verification, as specified by the specification sections. Label the samples indicating their origin and destination.
- .2 Ship samples (Shipping paid) to the Engineer office site.
- .3 Notify the Engineer in writing at the time of submission of product samples, differences they have with respect to the requirements of the contract documents.
- .4 When the color, pattern or texture been a prescription, submit full range of samples required.
- .5 Changes to the samples by the Engineer are not supposed to vary the contract price. If this is the case, however, notify the Engineer in writing before beginning work.
- .6 Bring changes to samples that may be requested by the Engineer while respecting the requirements of the contract documents.
- .7 Examined and approved samples will become the standard from which the quality of materials and workmanship of the finished and installed work will be evaluated.



## **1.7 MATRIEL SAMPLING**

- .1 Carry out the works samples in accordance with Section 01 45 00 - Quality Control.

## **1.8 CERTIFICATES**

- .1 Submit the required documents by the Committee on Health and Safety immediately after the contract is awarded.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 CONTENT OF THE SECTION**

- .1 The Contractor shall manage its activities so that the health and safety of the public and site personnel and protection of the environment has always precedence over issues related to cost and schedule.

### **1.2 REFERENCES**

- .1 Canada Labour Code, part II, Canada Occupational Health and Safety Regulations
- .2 Canadian Standards Association (CSA).
- .3 Workplace Hazardous Material Information System(WHMIS) / Health Canada.
  - .1 Datasheets.
- .4 "Loi sur la santé et la sécurité du travail, L.R.Q. Chapitre S-2.1."
- .5 "Code de sécurité pour les travaux de construction, S2.1, r.6."

### **1.3 DOCUMENTS/SAMPLES TO SUBMIT**

- .1 Submit documents and samples in accordance with Section 01 33 00
- .2 Submit to the Departmental Representative and CSST the specific prevention program for construction, as described in section 1.8, at least 10 days before the work begins. The Contractor must then update its prevention program if the work differs from its original forecast. The Departmental Representative may, after receiving the program and at any time during the works, require that the program be amended or supplemented to reflect the reality of the site. The Contractor must then provide corrections before the works begin.
- .3 Submit to the Departmental Representative the inspection site grid duly completed to the frequency specified in Article 1.13.1.
- .4 Submit to the Departmental Representative, within 24 hours, a copy of any inspection report, correction notice or recommendations issued by the federal or provincial inspectors.
- .5 Submit to the Departmental Representative, within 24 hours, an investigation report for any accident resulting in injury and any incident that highlights a potential risk.
- .6 Submit to the Departmental Representative, all datasheets for controlled products used on the construction site, and at least three days prior to their use on site.
- .7 Submit to the Departmental Representative, copies of training certificates that are required for the implementation of prevention program, including:
  - .1 Health and general safety courses for construction sites;
  - .2 First Aid in workplace and CPR;
  - .3 Port and adjustment of personal protective equipment

- .4 Forklift safety driving;
- .5 Elevating work platforms
- .6 And any other training required by regulation or by the prevention program
- .8 Medical examination: Where medical examinations are required, under a law, a regulation, a directive, a specification or a prevention program, the contractor must:
  - .1 Before mobilization, submit to Departmental Representative the medical exam of its supervisory staff and all employees covered by the first paragraph of this article who will be present at the start of the construction site
  - .2 Thereafter, submit progressively and without delay medical exam for all new arrivals to the site which are covered by the first paragraph of this article people.
- .9 Emergency plan: the emergency plan, as described in section 1.8.3, shall be forwarded to the Departmental Representative at the same time as the prevention program.
- .10 Construction site opening notice: the notice of construction site opening must be submitted to the "commission de la santé et de la sécurité du travail (CSST)" before the work begins, with a copy to the Departmental Representative. A copy of the notice shall also be prominently displayed on the site. During demobilization, the closure notice must be sent to the CSST, with a copy to the Departmental Representative
- .11 Engineering plans and certification requirements: The Contractor shall forward to the CSST and the Departmental Representative a signed and sealed copy by an engineer of all plans and certificates of compliance that are required under the "Code de sécurité pour les travaux de construction (S2.1, r. 6)" Code of Safety for copy jobs Construction (S2.1, r. 6), another law, another regulation or other provision of the estimate or contract. A copy of these documents must be available at all times on site.
- .12 Certificate of conformity issued by the CSST: certificate of conformity is a document issued by the CSST confirming that the contractor is in good standing with the CSST, that is to say, he paid him all sums due in respect to a particular contract. This document must be provided to the Departmental Representative at the completion of the work

#### 1.4 RISK EVALUATION

- .1 The Contractor shall conduct a hazard identification relating to each of the tasks performed on the job.
- .2 The Contractor shall plan and organize work so as to help eliminate the source of danger or collective protection and thus minimizing the use of personal protective equipment. When personal protection against falls is required, workers must use a safety harness in accordance with the standard CAN/CSA-Z-259.10. The seat belt must not be used as protection against falling.
- .3 Equipment, tool, or a means of protection that cannot be installed or used without compromising the health and safety of workers or the public is deemed to be inadequate for the job.
- .4 All mechanical equipment must be inspected prior to delivery on site. Before the use of mechanical equipment the Contractor shall transmit to the Departmental Representative a certificate of compliance signed by a competent mechanic. Departmental Representative may

at any time, if he suspects a malfunction or an accident risk, order the immediate cessation of equipment and require a second inspection by a specialist of his choice.

- .5 For use of equipment for lifting persons or materials, to ensure that the inspections required by the standards are made and being able to provide a copy of the inspection certificate on request of the Departmental Representative

## 1.5 MEETINGS

- .1 A decision contractor's representative shall attend all meetings and when it comes to health and safety on site.
- .2 The contractor shall establish a site committee and hold meetings as required by the Safety Code for the construction.

## 1.6 REGULATORY REQUIREMENTS

- .1 Comply with all laws, all regulations and all the standards that are applicable to the works.
- .2 Observe the standards and regulations prescribed to ensure a normal workflow on land contaminated with hazardous or toxic materials.
- .3 Notwithstanding the date of publication of the standards specified in the security code for construction, one should always use the current version when it applies.

## 1.7 CONDITIONS OF LAND/IMPLEMENTATION

- .1 On this construction site, the Contractor shall take into account the specific characteristics of the site:
  - .1 Presence of many vehicles around the site
  - .2 Presence of bird droppings
  - .3 Constant presence of employees and the public around the site.

## 1.8 MANAGEMENT OF HEALTH AND SAFETY

- .1 Accept and assume all the duties and responsibilities normally assigned to the prime contractor under "Loi sur la santé et la sécurité du travail (L.R.Q., chapitre S2.1) et du Code de sécurité pour les travaux de construction (S2.1, r.6)".
- .2 Develop a program of specific prevention project that is based on the identification of risk and implement this program at the beginning of the project until the last stage of demobilization. The prevention program should take into account information that appears in section 1.7. It must be sent to all concerned, in accordance with Article 1.3. The prevention program must include at least:
  - .1 The company's policy on health and safety;
  - .2 The description of the work, the total cost of the work, the schedule and the enrollment projected curve
  - .3 The organizational responsibility for health and safety;
  - .4 The physical and material organization of the site;

- .5 The first aid standards
  - .6 The identification of risks in relation to the site;
  - .7 The identification of risks in relation to the work performed, including preventive measures and methods of implementation;
  - .8 The training required;
  - .9 The procedure in case of accident / injury;
  - .10 The written commitment of all stakeholders to respect this prevention program;
  - .11 A site inspection grid based on preventive measures.
- .3 The Contractor must develop an effective emergency plan in relation to the characteristics and constraints of the site and its environment. The emergency plan must be sent to all concerned, in accordance with Article 1.3. The emergency plan must contain in particular:
- .1 The evacuation procedure;
  - .2 The identification of resources (police, fire, ambulance etc.);
  - .3 The identification of those responsible for the site;
  - .4 The identification of rescuers;
  - .5 The training required for those responsible for its implementation;
  - .6 And any other information that would be necessary, given the characteristics of the site.

## **1.9 RESPONSIBILITIES**

- .1 Regardless of the size of the site or the number of workers present, name a competent person as supervisor and responsible for health and safety. Take all necessary measures to ensure the health and safety of persons and property at work and in the immediate environment of the site which could be affected by the workflow.
- .2 Take all necessary measures to ensure the implementation and compliance with the requirements of health and safety information contained in the contract documents, the federal and provincial regulations, standards that are applicable and the specific prevention program for the site and comply promptly with any order or correction notice issued by the "Commission de la santé et sécurité au travail (CSST)".
- .3 Take all necessary measures to keep the site clean and tidy throughout the work.

## **1.10 COMMUNICATION AND DISPLAY**

- .1 Take all necessary steps to ensure effective communication of information on health and safety on site. Upon arrival at the site, all workers must be informed of special prevention program, their obligations and their rights. The Contractor shall insist on the right of workers to refuse work if they believe that this work can jeopardize their health, safety, physical integrity or that of other people on the site. He shall keep onsite and update a register with the information provided and the signature of all the workers who have received such information.

- .2 The following information and documents must be posted in an easily accessible place for workers:
  - .1 Document "Avis d'ouverture du chantier";
  - .2 Identification of the project manager;
  - .3 Company's policy on health and safety at work;
  - .4 Site prevention specific program;
  - .5 Emergency plan;
  - .6 Safety Data Sheet for all controlled products used in construction
  - .7 Minutes of site's committee meetings;
  - .8 Names of site's committee representatives
  - .9 Name of rescuers;
  - .10 Intervention and correction reports issued by the CSST.

#### **1.11 CONTINGENCY**

- .1 When a source of danger not specified in the specifications and not identified during the preliminary site inspection appears out of or in the works, the Contractor shall stop work immediately, implement temporary protective measures for workers and the public and prevent the Departmental Representative verbally and in writing. The Contractor shall thereafter make the necessary changes to the prevention program for that work can resume safely.

#### **1.12 WORKPLACE INSPECTION AND CORRECTION OF DANGEROUS SITUATIONS**

- .1 Inspect the workplace and complete the site inspection grid at least once a week.
- .2 Immediately take all necessary steps to correct the exceptions to laws and regulations and dangerous situations which are identified by a government inspector, by the Departmental Representative, the health and safety coordinator, construction, or during periodic inspections.
- .3 Submit to the Departmental Representative a written confirmation of all actions taken to correct deviations and dangerous situations.
- .4 Work stopping: Grant the security officer or, if there is no security guard, the person appointed to take care of health and safety, the authority to order the stop and resumes when it is deemed necessary or desirable for reasons of health and safety. It will ensure that the health and safety of the public and site personnel and protection of the environment have always precedence over issues related to cost and schedule.
- .5 Without limiting the scope of sections 1.8 and 1.9, the Departmental Representative may at any time order the stop work if, in his perception, there is a danger or risk to the health or safety of site personnel, the public or environment.

#### **1.13 BLASTING**

- .1 Blasting and any other use of explosives is prohibited.

#### **1.14 PROTECTIVE MEASURES IN CLEANING OF BIRDS DROPPINGS**

##### **.1 Respiratory protection**

- .1 As infectious agents potentially present in bird droppings are transmitted to humans by air, the use of a respirator is mandatory because of the risk of damage to health by inhalation of this pollutant.
- .2 The type of respiratory protection should be based on the levels of exposure to feces, that is to say, among other things, the activity of the individual, the workplace, but also the amount of manure present and the duration of exposure. Regardless of the model chosen, the device must be minimally a cartridges filter mask with high-efficiency (HEPA or N100), meet Canadian standards and be NIOSH (National Institute for Occupational Safety and Health) certified and can be used by personnel who have received prior training on the proper handling of masks.
- .3 In addition to respiratory protection to guard against infectious agents, protection against chemical vapors is necessary whenever there is use of bleach. A suitable gas filter (white with a yellow band for chlorine) is then added to mask or half mask in addition to the particulate filter. Disposable coveralls as well as combinations of overshoes must be worn by all workers in order to avoid contamination by pathogens of their clothes. Workers should also wear gloves to prevent cuts and contamination of skin wounds.
- .4 After working in a contaminated environment, workers must, before removing the protector respirator device remove the disposable dress, gloves and shoe covers, place them in a heavy plastic bag that will be removed with the manure to a landfill site or incinerator in accordance with all requirements for the disposal of these wastes.
- .5 Sinks with disposable towels must be available to workers. Workers should at least wash their hands and face every time they leave the contaminated area. Sanitary facilities should be located outside the contaminated area.

#### **1.15 SEALING GUNS AND OTHER CARTRIDGES DEVICES**

- .1 The use of sealing guns or other cartridges devices must be authorized by the Departmental Representative.
- .2 Anyone who uses a sealing gun must have a training certificate and meet all the requirements of section 7 of the Code of Safety for Construction (S-2.1, r. 6).
- .3 Any other cartridge device must be used according to the manufacturer's indications and the standards and regulations.

### **PART 2 - SPECIAL REQUIREMENTS**

#### **2.1 GENERAL**

- .1 The Contractor shall ensure that any person who performs work exposing to risk of falling more than 2.4 m has a protection against falls.
- .2 Plan and organize work so as to help eliminate the source of danger or collective protection and thus minimizing the use of personal protective equipment. When personal protection

against falls is required, workers must use a safety harness according to CAN-CSA Z-259.10-M90 standard. The seat belt must not be used as protection against falling.

- .4 The wearing of safety harness is mandatory in all aerial platforms telescopic mast, articulated or rotatable.
- .5 Delimit a danger zone at any place where equipment is used for working at height.

## 2.2 SCAFFOLDING

### .1 Foundations:

- .1 Scaffolding must be installed on a solid foundation so that they cannot slip or tip.
- .2 The Contractor who wants to install a scaffold on a roof, a roof overhang, canopy or attic shall submit to the Departmental Representative calculations and loads and obtain authorization before starting the installation.

### .2 Assemblies, bracing and securing

- .1 All scaffolds must be assembled, braced and secured in accordance with manufacturer's instructions and the requirements of the *Safety Code for the construction*.
- .2 In any situation where it is necessary to remove some elements of the scaffold (eg braces), the Contractor shall submit an assembly procedure signed and sealed by a professional engineer attesting that the scaffolding assembled will perform work safely, taking into account the loads that will be applied.
- .3 For scaffolding which span between two supports is greater than 3m, the Contractor shall provide an assembly plan signed and sealed by an engineer.

### .3 Protections against falls during assembly:

- .1 Before starting work, the Contractor shall submit to the Departmental Representative procedure specifying the means of protection used and, where applicable, the anchors for the emergency cables or restraint links. This procedure must comply with the provisions of sections 3.9.4.5, 2.9.1 and 2.10.12 of the *Code of Safety for Construction* (amended on 2 August 2001).

### .4 Floors:

- .1 Scaffolding decks must be designed and installed in accordance with the *Safety Code for construction*.
- .2 If planks are used, they must be approved and stamped in accordance with Article 3.9.8 of the *Code of Safety for Construction* (effective January 1st 2002).
- .3 The floor must cover the entire protected area with railings.
- .4 Notwithstanding the foregoing, the scaffolding sections 4 and up (or 6m) in height should have a solid floor covering the entire surface of the bearers to all 3m or part 3m and elements of the floor shall at any time be moved to create intermediate levels.

### .5 Guardrails:

- .1 A guardrail should be installed at all levels of work.
- .2 The cross bracing should not be considered railings



- .3 In the case of scaffolding four sections (or 6m) or more in height where solid floors are required, guardrails must be installed at each of these levels at the beginning of the work and remain in place until the end of the work
- .6 Means of access
  - .1 The Contractor shall ensure that access to the scaffold means does not compromise the safety of workers
  - .2 When the floors are made of scaffolding planks, ladders should be installed so that the planks that exceed not impede the ascent or descent.
  - .3 Notwithstanding the provisions of the *Safety Code for Construction*, we must install stairs on all scaffolds with 6 rows upright and more and 6 sections and more (or 9m) in height.
- .7 Protection of the public and occupants:
  - .1 The Contractor shall define and barricade the work area so as to limit access to only authorized workers.
  - .2 The Contractor shall install walkways, nets or other devices of the same kind to protect the public or the occupants against falling objects.
- .8 Using public roads:
  - .1 When it is necessary to infringe on the public highway, the Contractor shall obtain, at its own expense all licenses and permits required by the competent authority
  - .2 The Contractor shall install at its own expense, all signs, barricades and other devices required to ensure the safety of the public and its own facilities.

## 2.3 PROTECTION AGAINST FALLS FROM HEIGHT

- .1 Guardrails:
  - .1 The installation of guardrail is required. PWGSC may indicate some restrictions on anchoring, in which case the Contractor shall ensure that the railings still meet all the requirements of Section 3.8 of the *Safety Code for construction* industry (RSQ, S-2.1, r.6).
  - .2 The Contractor agrees that the guards remain in place until the end of the project. The Departmental Representative permit dismantling when can confirm that all work, all inspections and the necessary corrections were made
- .2 Harness:
  - .1 The wearing of safety harness is mandatory for installation of guardrails.
  - .2 The wearing of safety harness is mandatory for the installation and modification of parapets or flashing, and if it is necessary to temporarily move the guardrail.
  - .3 The wearing of safety harness is mandatory for receiving equipment and signals to the crane on the edge of a hole.
  - .4 The wearing of safety harness is mandatory for all work along the empty where collective protection does not provide adequate security.

- .5 The Contractor shall submit a fastening method and system emergency cables according to Section 2.10.12 of the *Safety Code for the Construction* industry(RSQ, S-2.1, r. 6) for each sector or different workplace.
- .3 Ladders:
  - .1 All ladders must be of sufficient length to exceed the level of access of at least three levels.
  - .2 All ladders must be attached at the top so as not to slide sideways. The Contractor shall implement a system to comply with this rule during finishing works.
- .4 Scaffolding:
  - .1 All scaffolding must be inspected and assembled in accordance with the *Safety Code for the construction industry*(RSQ, S-2.1, r. 6).
  - .2 When assembling scaffolding, the Contractor shall ensure that all workers are constantly protected against falls in accordance with Article 3.9.4.5 of the *Safety Code for the construction industry*(RSQ, S-2.1, r. 6).
- .5 Lifting materials
  - .3 For all lifting equipment, the Contractor must submit to the Departmental Representative a mechanical inspection certificate made just before the delivery of the equipment on site.
  - .4 When installing a winch, the contractor must submit to the Departmental Representative the installation process recommended by the manufacturer or, failing that, a method of installing signed and sealed by an engineer. The installation process should take into account the maximum loads, number, weight and the location of the counterweight and any other details that may affect the capacity and stability of the device.
  - .5 In addition to the certificate of mechanical inspection, all cranes and truck cranes must have in the cabin the annual inspection certificate and crane logbook.
  - .6 Lifting devices should be positioned so that the loads are not carried over the heads of workers, occupants and the public.
  - .7 Any lift area should be barricaded to prevent unauthorized persons to enter.
  - .8 The Contractor shall obtain all permits and pay fees, if it's necessary to temporarily block the street to respect the previous paragraph or any other matter relating to the safety of workers, occupants or the public.
  - .9 The Contractor shall carefully inspect all slings and lifting gear and ensure that those who are in poor condition are destroyed and discarded.
  - .10 The lifting of compressed gas cylinders must be done using a cart specially designed for this purpose.
- .6 Protections against burns:
  - .1 People who work with kettle must wear long sleeves, safety goggles and face shield when changing the kettle
  - .2 People who work of bitumen or other hot liquids must wear gloves, long sleeves and safety glasses

.7 Protection against fire

- .1 Work on construction sites must be made in accordance with the standard of the "*Commissaire des incendies CI 301 sur les travaux de construction, juin 1982*"
- .2 At the beginning of each shift and for each sector, the Contractor must obtain a "Hot Work Permit" issued by the head of the workplace (or his nominee).  
Au début de chaque quart de travail et pour chaque secteur, l'Entrepreneur doit obtenir un "Permis de travail à chaud" émis par le responsable du lieu de travail (ou la personne qu'il désigne).
- .3 A functional and adequate portable fire extinguisher must be available and easily accessible within 5 m from flame and sparks or intense heat.
- .4 The Contractor must designate a person to make a round (fire) for a period of two hours after the end of the shift. This person countersign the license and give it to the manager of the workplace (or his nominee) after the period of two hours.
- .5 The storage of propane cylinders must be made in accordance of the CAN/CSA-B149.2-F00 standard (code on the storage and handling of propane), in addition of meeting the specific conditions set out in this document. Cylinders must be stored outdoors in a safe place, protected from unauthorized manipulation in a storage cabinet designed for this purpose, held securely upright and locked at all times, in a place where there are no moving vehicles unless they are protected by barriers or equivalent.
- .6 Tanks or containers of fuel gas or fuel must be stored at least 10m from any building.
- .7 The amount of propane tanks on the roof shall not exceed the necessary for a working day and the bottles shall at all times be attached in a standing position or used vertically in a cart designed for that purpose
- .8 All bottles used or stored on construction sites shall be provided with a collar designed to protect the valve.
- .9 Filling bottles on the site is prohibited, unless a procedure in accordance with CAN / CSA B149.2 standard is approved and authorized by the Departmental Representative.

.8 Materials and waste management

- .1 On the roof, lightweight materials and sheet materials should be kept in containers or securely attached. In case of exemption, however minor it may be, the Departmental Representative may prohibit the storage of materials on the roof.
- .2 The preceding paragraph also applies to waste.
- .3 Waste must be disposed as long as the work goes in a garbage chute or a suitable containers.
- .4 All waste must be removed from the roof at the end of the shift
- .5 Unless special permission of the Departmental Representative, any waste bin must be located at least 3m from any structure or building.

.9 General protection and site organization

- .1 Regardless of the circumstances and nature of work, people with access to the site must wear shoes and a safety helmet. The Contractor shall provide workers who will crouch or bend the chin or ratchet suspension helmet.

- .2 Covered walkways must be designed to protect all entrances and exits.
- .3 A security perimeter area shall be arranged in the work area to protect the public and occupants.
- .4 The work area on the ground, the materials handling area and the area where the kettle is installed must be clearly barricaded so that the occupants and the public cannot access.
- .5 Before installing any device capable of transmitting gases or vapors, the Contractor must obtain the permission of the head of the workplace. This will ensure that there is no risk of leakage in the ventilation systems of the building.
- .6 The Contractor shall ensure that the site is kept clean and tidy throughout the work.
- .7 Copies of data sheet for all controlled products must be submitted to the Departmental Representative and the head of the workplace before work begins.
- .8 The Contractor shall provide sanitary facilities and rest areas meet the requirements of the Safety Code for the construction.

### **PART 3 - EXECUTION**

3.1 N/A

**END OF SECTION**

## **PART 1 GENERAL**

### **1.1 SCOPE OF WORK**

- .1 This section applies to all work required to ensure the protection of the environment at the work site and particularly the shores and in the aquatic environment.
- .2 The Contractor shall provide labor, materials, construction equipment, handling and transportation and supervision required for the proper execution of all work to protect and restore the environment; as described in this section and shown on the plans.

### **1.2 MAIN REFERENCE STANDARDS**

- .1 The Contractor shall take into account, in particular, standards, laws, regulations and subsequent references in force in the execution of its work:
  - .1 "Loi sur la qualité de l'environnement L.R.Q.", chapter Q-2 – Government of Quebec.
  - .2 "Règlement sur les déchets solides R.R.Q.", 1981, chapter Q-2, r.14.
  - .3 "Guide environnemental des travaux relatifs au programme d'assainissement des eaux du Québec".

### **1.3 DISPOSAL OF OBJECTS, MATERIALS, PRODUCTS OR OTHER**

- .1 The Contractor must dispose the execution materials accordance with the requirements of this section, if no other method or guideline is presented in the specifications.
- .2 All objects, materials, and other products from excavation or demolition, which the Contractor does not need to work should be disposed of at the expense of the Contractor unless otherwise specified in Section 01 35 70.
- .3 The Contractor becomes the owner of these materials and should be disposed off site and out of water bodies and their respective banks. The materials must be transported by the Contractor to or places of their choice for which one (s) he has previously obtained approval of the Project Manager. The Contractor is solely responsible for the consequences of filling one or more fields and possible claims owners concerned about the grading, the quality of spoil materials, damage to trees, terraces, etc.
  - .1 Disposal of dry materials:
    - .1 The definition of "dry material" is that of "Règlement sur les déchets solides de la Loi sur la qualité de l'environnement".
    - .2 The Contractor is, unless otherwise specified in the contract, the owner of the dry materials and should be disposed off-site work and expense, all in accordance with the provisions of "Règlement sur les déchets solides (Q-2, r.14)". For this purpose, the Contractor shall obtain the approved list for the elimination of dry materials to the appropriate regional office sites "ministère du Développement durable, de l'Environnement et des Parcs".
  - .2 Disposal of surplus of excavation :
    - .1 All (excluding any surplus excavation waste, non-reusable materials, with the exception of dry materials) storage and disposal activities proposed site for the completion of this contract must be approved by Contracting Agency or the project

Manager no later than the first site meeting. No disposal of these materials may be made without obtaining the approval.

- .2 All excavated surplus disposal sites will be a leveling and appropriate revegetation, to the satisfaction of the owner and the project manager.
- .3 Any provision of materials, objects, products or other materials referred to in this section shall be made out of any body of water and their respective bank.

#### **1.4 CLEANLINESS OF THE SITES**

- .1 To minimize inconvenience to residents and motorists, the Contractor shall, without delay, clean soiled areas on the periphery of the site. Sectors borrowed by trucks will be monitored and maintained to prevent the accumulation of dirt deposits. At the end of the work, the site and its surroundings must be in a clean condition to the satisfaction of the Project Manager. Failure to meet these obligations, the owner will clean at the Contractor expense.

### **PART 2 GENERAL PRECAUTIONS AND MITIGATION**

#### **2.1 GENERAL**

- .1 At the completion of the work, mitigation measures will be the responsibility of the contractor, under the supervision of the promoter (PWGSC) or its consultant. The developer (or consultant) who will monitor the site to ensure that the environmental monitoring program is presented and discussed with the contractor during the kick-off meeting of the site and that this item appears on all meetings subsequent site. The monitoring form must be completed by the site supervisor and placed on file at the end of the work.

#### **2.2 MACHINERY**

- .1 Uses of vehicles and machinery in good working condition and free of leaks. Any machinery (excavator, crane, etc.) Must be inspected by qualified personnel before work begins to ensure that there is no mechanical breakage that can result in a loss of oil and other contaminants.
- .2 Maintain construction equipment in good working condition.
- .3 Leave machinery outside the zone of influence of waves during storms.
- .4 Perform general maintenances and fueling of equipment and vehicles in the spaces provided for this purpose and where there is no risk of contamination of the aquatic environment. Never clean the equipment in the rack. Handling fuel, oil or other contaminants must be performed under constant surveillance and more than 30 meters from the normal high water mark (OHWM) to avoid spillage.
- .5 Store fuel or other hazardous materials at more than 30 meters from the water or flowing ditch. Install, if necessary, fuel depots, oil or other petroleum products where there is no risk of contamination of the aquatic environment.
- 6 Contaminants accidentally released into the environment will be recovered immediately and disposed of according to regulations.
- .7 Have and how to use emergency equipment in case of a spill. In the event of an oil spill or other hazardous materials, the Contractor shall notify the Departmental Representative and the proper authority. Collect oil and contaminated soil and dispose of immediately in accordance with the legislation in force.

- .8 Report any spills that impact on the environment to the responsible authorities of the Canadian Coast Guard, maritime pollution 1-800-363-4735 at Emergency Service Environment (MDDEP) at 1-866-694-5454 and Environment Canada 1-866-283-2333; recover contaminated, if material and dispose with an accredited company.

### 2.3 MATERIALS AND WASTE

- .1 Do no work in difficult weather conditions (heavy rain, strong wind and rough seas).
- .2 Wet down dry materials and cover the waste in difficult weather conditions to avoid the resulting wind raising dust or debris.
- .3 Avoid to leave bare excavated soils and implement needed a temporary restraint of the soil system (membranes, geotextile fabric, etc.) to prevent inclusion of suspended solids in the water during the work.
- .4 Borrowing materials must be free of contamination.
- .5 Borrowing materials must be stored at least 30 m of water and any water course (outside the area of influence of waves during storms) and they should be covered with a tarpaulin when it is prolonged storage. Granular materials will be stored to avoid intake of fine particles in water.
- .6 It is forbidden to store, deposit or dispose of any material or debris in the aquatic environment.
- .7 Always encourage the recycling of waste and scrap and demolition uncontaminated building where the facilities are existing in the area. Materials that will not be recovered either on site or on other sites will be sent preferably to a recycling center where these materials can be reused or be routed to a dry disposal. These places are authorized to receive such materials.
- .8 Clean up the site and dispose of liquid and solid waste regularly according to the rules and procedures.
- .9 Concrete mixers and equipment used to transport and pouring concrete should be washed at a distance of at least thirty (30) meters from the shore and in places where there is no risk of contamination of the aquatic environment. If this is not possible, take appropriate precautions to avoid contamination of the aquatic environment.
- .10 Store if possible granular materials containing fine more than 30 meters from the shore and as far as possible and ensure that they are not exposed to the weather. These granular materials can be made available on the work site, but must be used within 48 hours of delivery and covered in inclement weather so not to be exposed. Otherwise, the Contractor shall provide a method to prevent dispersal in the environment.
- .11 Provide the site all the necessary equipment (chemical toilets, bins, tanks, etc.) To prevent release of waste into the environment. They must be placed more than 30 meters of water, if applicable.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 SCOPE OF WORK**

- .1 The work described in this section includes the supply, labor and equipment required to carry out the dismantling works.

### **1.2 PROTECTION OF WORKS**

- .1 Protect existing works and equipment to remain in place during and after dismantling.
- .2 If the work, equipment or materials are damaged during dismantling, the Contractor must replace or repair damages immediately to the satisfaction of the Project Owner.

### **1.3 CLEANING THE SITE DURING DISMANTLING WORKS**

- .1 Keep the site clean and free from accumulation of debris and waste materials.
- .2 Provide on-site, containers for the disposal of debris and waste materials.
- .3 Provide and use, for recycling, separate containers clearly identified.
- .4 Remove debris and waste materials from the site at predetermined intervals or eliminate as directed by the Project Manager.

### **1.4 FINAL CLEANING AFTER DISMANTLING WORKS**

- .1 After the dismantling, remove surplus materials, tools as well as equipment and construction materials that are no longer needed to carry out the remaining work.
- .2 Remove and dispose of debris and waste materials generated during the dismantling by the Contractor and all its subcontractors.
- .3 Sweep paved areas and rake the remaining land not to hinder the execution of subsequent work.

### **1.5 REFERENCE STANDARDS**

- .1 Dismantling work must comply with the code "Practice for Safety in Demolition of Structures" (CSA S350-M1980, the most recent version).

## **PART 2 – PRODUCTS**

### **2.1 N/A**

## **PART 3 – EXECUTION**

### **3.1 PREPARATION**

- .1 Inspect the site and identify works and equipment to be dismantled and not returned to the Project Owner, as well as those that must be dismantled and handed back to the Project Owner, and those who must remain in place, be protected and remain functional.
- .2 Confirm with the Project Manager and Project Owner:
  - .1 The list of works and equipment mentioned in the previous point;



- .2 The discipline (subcontractor) responsible for the dismantling of all equipment or works identified to be dismantled;
- .3 The dismantling sequence;
- .4 Temporary works required to keep in service equipment or works that must not be dismantled.
- .3 No dismantling shall be done before validation by the Project Manager and Project Owner has been carried out.
- .4 Follow up and coordinate, with the various subcontractors concerned before the dismantling, to keep in service at any time the equipment that must not be dismantled.
- .5 All equipment to be dismantled that has not been identified as having to be handed back to the Project Owner will be the property of the Contractor. He must dispose of the equipment in compliance with all current environmental guidelines.
- .6 The Contractor should take all necessary precautions to prevent damage to the equipment to be handed back to the Project Owner during its dismantling and transportation (if applicable) so that they can, if necessary, be relocated and given in service later.
- .7 All the equipment with electric or electronic components must be carefully protected during dismantling or transport in a sealed and weatherproof enclosure.

### **3.2 DISMANTLING OF WORKS**

- .1 Take all necessary precautions to prevent damage and to maintain functional all the equipment, materials, accessories, etc., to remain in place.
- .2 Fill in and seal any opening or hole created by the removal of existing equipment (roof, wall, floor, pipe, basin, manhole, etc.) in a clean manner, in accordance with materials in place and architectural features and style in place.

## **PART 4 – PLANT AND FIELD TESTS**

### **4.1 N/A**

**END OF SECTION**

**Part 1            General**

**1.1            RELATED SECTION**

- .1        Section 01 33 00 – Documentation and samples

**1.2            REFERENCES**

- .1        Canadian Construction Documents Committee (CCDC)

**1.3            INSPECTION**

- .1        Allow Departmental representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2        Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental representative instructions.
- .3        If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4        The Departmental representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, the contractor must correct such Work and pay cost of examination and correction.

**1.4            INDEPENDENT INSPECTION AGENCIES**

- .1        Independent Inspection/Testing Agencies will be engaged by the Departmental representative for purpose of inspecting and/or testing portions of Work. Costs of such services will be borne by the Departmental representative.
- .2        Provide equipment required for executing inspection and testing by appointed agencies.
- .3        Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4        If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. The Contractor will have to correct defect and irregularities as advised by the Departmental representative at no cost to the Departmental representative. The Contractor will pay costs for retesting and reinspection.

**1.5            ACCESS TO WORK**

- .1        Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2        Co-operate to provide reasonable facilities for such access.

**1.6            PROCEDURES**

- .1        Notify appropriate agency and the Departmental representative in advance of requirement for tests, in order that attendance arrangements can be made.

- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

#### **1.7 REJECTED WORK**

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by the Departmental representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of the Departmental representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by the Departmental representative.

#### **1.8 TESTS AND MIX DESIGNS**

- .1 Furnish test results and mix designs as requested.

#### **1.9 MOCK-UPS**

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations [as specified in specific Section] [acceptable to the Departmental representative.
- .3 Prepare mock-ups for Departmental representative's review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested the Departmental representative will assist in preparing schedule fixing dates for preparation.
- .6 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

#### **1.10 MILL TESTS**

- .1 Submit mill test certificates as requested in the specific sections.

#### **1.11 EQUIPMENT AND SYSTEMS**

- .1 Submit adjustment and balancing reports for mechanical and electrical systems.

END OF SECTION

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1    Section 01 56 00 – Temporary barriers and enclosures

**1.2            INSTALLATION AND REMOVAL**

- .1    Provide temporary utilities controls in order to execute work expeditiously.
- .2    Remove from site all such work after use.

**1.3            DEWATERING**

- .1    Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

**1.4            TEMPORARY VENTILATION**

- .1    Ventilating:
  - .1    Ventilate work spaces containing hazardous or volatile materials.

**END OF SECTION**

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1    Section 01 51 00 – Temporary utilities
- .2    Section 01 56 00 – Temporary barriers and enclosures
- .3    Section 01 74 11 – Cleaning

**1.2            REFERENCES**

- .1    Canadian Standards Association (CSA International)
  - .1    CSA-A23.1/A23.2-[04], Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2    CAN/CSA-Z321-[96(R2001)], Signs and Symbols for the Occupational Environment.
- .2    U.S. Environmental Protection Agency (EPA) / Office of Water
  - .1    EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

**1.3            ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Provide submittals in accordance with Section [01 33 00 - Submittal Procedures].

**1.4            INSTALLATION AND REMOVAL**

- .1    Provide construction facilities in order to execute work expeditiously.
- .2    Remove from site all such work after use.

**1.5            HOISTING**

- .1    Provide, operate and maintain hoists [cranes] required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2    Hoists [cranes] must be operated by qualified operator.

**1.6            SITE STORAGE/LOADING**

- .1    Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2    Do not load or permit to load any part of Work with weight or force that will endanger Work.

**1.7            CONSTRUCTION PARKING**

- .1    Parking will be permitted on site.
- .2    Provide and maintain adequate access to project site.
- .3    Clean runways and taxi areas where used by Contractor's equipment.

**1.8 OFFICES**

- .1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors can provide their own offices as necessary. Indicate location of these offices on site.

**1.9 EQUIPMENT, TOOL AND MATERIALS STORAGE**

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

**1.10 PROTECTION AND MAINTENANCE OF TRAFFIC**

- .1 Protect travelling public from damage to person and property.
- .2 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

**1.11 CLEAN-UP**

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1            RELATED SECTIONS**

- .1      Section 01 51 00 – Temporary utilities
- .2      Section 01 52 00 – Construction facilities

**1.2            REFERENCES**

- .1      Canadian General Standards Board (CGSB)
- .2      Canadian Standards Association (CSA International)

**1.3            INSTALLATION AND REMOVAL**

- .1      Provide temporary controls in order to execute Work expeditiously.
- .2      Remove from site all such work after use.

**1.4            GUARD RAILS AND BARRICADES**

- .1      Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.

**1.5            ACCESS TO SITE**

- .1      A barrier must be erected around the work area to limit the access of non authorised persons.

**1.6            PUBLIC TRAFFIC FLOW**

- .1      Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

**1.7            PROTECTION OF BUILDING FINISHES**

- .1      Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2      Provide necessary screens, covers, and hoardings.
- .3      Be responsible for damage incurred due to lack of or improper protection.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 33 00 – Documents and samples

**1.2 REFERENCES**

- .1 Conform to the reference standards in whole or in part as specifically requested in specifications.
- .2 If there is question as to whether products or systems are in conformance with applicable standards, the Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .3 Cost for such testing will be born by the Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

**1.3 QUALITY**

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .3 Should disputes arise as to quality or fitness of products, decision rests strictly with Consultant based upon requirements of Contract Documents.
- .4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

**1.4 AVAILABILITY**

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.



**1.5 STORAGE, HANDLING AND PROTECTION**

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Consultant.
- .9 Touch-up damaged factory finished surfaces to Consultant's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

**1.6 TRANSPORTATION**

- .1 Pay costs of transportation of products required in performance of Work.

**1.7 MANUFACTURER'S INSTRUCTIONS**

- .1 Unless otherwise indicated in specifications install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, Consultant to require removal and re-installation at no increase in Contract Price or Contract Time.

**1.8 QUALITY OF WORK**

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Consultant if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Consultant reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Consultant, whose decision is final.

**1.9 COORDINATION**

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

**1.10 REMEDIAL WORK**

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

**1.11 FASTENINGS**

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

**1.12 FASTENINGS - EQUIPMENT**

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

**1.13 PROTECTION OF WORK IN PROGRESS**

- .1 Contractor must verify, prior to any excavation, the presence of water piping, electrical wiring or any other equipment being potentially present. any correction will be borne by the Contractor

**1.14            EXISTING UTILITIES**

- .1      Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

**Part 2           Products**

**2.1            NOT USED**

- .1      Not Used.

**Part 3           Execution**

**3.1            NOT USED**

- .1      Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 74 21 – Waste management and disposal

**1.2 REFERENCES**

- .1 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions "C", In Effect as Of: May 14, 2004.

**1.3 PROJECT CLEANLINESS**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .3 Clear snow and ice from access to building, [bank/pile snow in designated areas only] [remove from site].
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Dispose of waste materials and debris as directed by the Departmental representative.
- .7 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .11 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

**1.4 FINAL CLEANING**

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.

- .4 Remove waste products and debris including that caused by Owner or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Clean lighting reflectors, lenses, and other lighting surfaces.
- .8 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .9 Remove dirt and other disfiguration from exterior surfaces.
- .10 Sweep and wash clean paved areas.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 CONTENT OF THE SECTION**

- .1 This section specifies the requirements for management and disposal of waste.

### **1.2 WASTE DISPOSAL PLAN**

- .1 Prepare plan for waste disposal before the work begins.
- .2 The waste disposal plan must include the following, without limitation:
  - .1 The nature of the demolition and excavation materials constituting waste to be dispose of.
  - .2 The destination of waste materials;
  - .3 Techniques and sequence of demolition and dismantling;
  - .4 The timetable of demolition and dismantling;
  - .5 The location;
  - .6 Security measures;
  - .7 Protective measures;
  - .8 The clear indication of storage areas;
  - .9 Details related to the handling and removal of waste materials;
  - .10 The quantities of waste material to be recovered for reuse.

### **1.3 PROGRAM FOR SORTING SOURCE MATERIALS**

- .1 Provide onsite facilities to collect, handle and store the anticipated amounts of waste.
- .2 Take the necessary measures not to cause contamination of soil and the aquatic environment. The Engineer reserves the right to verify the quality of the soil after construction. Any resulting decontamination work will be performed at the Contractor's expense.
- .3 Provide different locations for each type of waste, according to disposal site.
- .4 Provide places where it is easy to deposit materials without affecting the activities of the site or the users.
- .5 Place sorted materials in a place where they will undergo the least possible damage.
- .6 Waste must be shipped to a site operated under a Certificate of Approval from the *MDDEFP*.
- .7 Products contaminated with domestic sewage should be disposed in a site recommended by the *MDDEFP*. The handling of these products must be performed by a qualified workforce. The Contractor shall ensure that no residues or wastes contaminate accessible surfaces. The Contractor shall, at its expense, decontaminate all contaminated surfaces after removal of residues.

#### **1.4 STORAGE, HANDLING AND MATERIALS PROTECTION**

- .1 Store in the location indicated by the Engineer the materials to be removed from the site.
- .2 Unless otherwise specified, the materials that must be removed become property of the Contractor.
- .3 Items left in place, not demolished, should be left up to the satisfaction of the Engineer.
- .4 Support the structure affected by the work. If the safety of the structure may be compromised, stop work immediately and notify the Engineer.
- .5 Protect electrical and mechanical systems that will be kept.
- .6 Sort and store in designated waste materials generated by the demolition areas.
- .7 Store treated wood with creosote temporarily onsite in a suitable containment structure so that runoff does not reach the aquatic environment or soil.

#### **1.5 WASTE DISPOSAL**

- .1 It's forbidden to bury rubbish and waste.
- .2 It's forbidden to throw waste into rivers, sanitary sewer and storm sewer.
- .3 Collect waste materials as the progress of demolition goes.
- .4 It's forbidden to burn waste on site.

#### **1.6 WORK TIMETABLE**

- .1 Coordinate the management of waste with other activities in order to ensure the orderly conduct of the work.

### **PART 2 – PRODUCTS**

N/A.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL**

- .1 Handle waste in accordance with applicable codes and regulations, and according to their level of contamination.

#### **3.2 CLEANING**

- .1 Once completed, remove the tools and waste; leave the premises clean and tidy.
- .2 Clean the work area as you go.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 33 00 – Documents and samples to be submitted

**1.2 REFERENCES**

- .1 Canadian Environmental Protection Act (CEPA)
  - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

**1.3 ADMINISTRATIVE REQUIREMENTS**

- .1 Acceptance of Work Procedures:
  - .1 Contractor's Inspection: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
    - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
    - .2 Request Departmental Representative inspection.
  - .2 Departmental Representative inspection:
    - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
    - .2 Contractor to correct Work as directed.
  - .3 Completion Tasks: submit written certificates in that tasks have been performed as follows:
    - .1 Work: completed and inspected for compliance with Contract Documents.
    - .2 Defects: corrected and deficiencies completed.
    - .3 Equipment and systems: tested, adjusted balanced and fully operational.
    - .4 Certificates required by Utility companies: submitted.
    - .5 Operation of systems: demonstrated to Owner's personnel.
    - .6 Work: complete and ready for final inspection.
- .4 Final Inspection:
  - .1 When completion tasks are done, request final inspection of Work by Departmental Representative and Contractor.
  - .2 When Work is considered incomplete according to Departmental Representative, complete outstanding items and request re-inspection.
- .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.



- .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
- .7 Final Payment:
  - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
  - .2 When Work deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.
- .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 GENERAL**

- .1 This section specifies the general requirements and procedures for testing and commissioning of equipment for civil engineering, process engineering, electrical, architectural, plumbing, ventilation and automation. This section covers all sections of the specifications.

### **1.2 GENERAL CONDITIONS OF ACHIEVEMENT**

- .1 The Contractor shall, in the presence of the supplier and / or its subcontractors, the Project Manager and the representative of the client, perform the verification, calibration and commissioning of all installed equipment, perform tests, performance tests and checks specified in this specification or required by laws and regulations and provide all service manuals required.
- .2 This work can be broadly described as but not limited to the following:
  - .1 Dry verification all structures of works and equipment;
  - .2 Commissioning and trial operation of mechanical equipment, mechanical process, power and control under real conditions;
  - .3 Commissioning, calibration and equipment operating testing with their devices under real conditions units;
  - .4 Calibration of all measuring devices;
  - .5 Testing and performance reports;
  - .6 Continuous testing;
  - .7 Assistance during commissioning of equipment, testing and instructions to operation staff.
- .3 A job scheduling program of the commissioning that must be prepared in conjunction with the Project Manager prior to commissioning work
- .4 For all types of tests to be done (dry, operation and performance), the Contractor shall submit to the Project Manager, for approval, realization protocols
- .5 With the exception of test protocols to achieve for the work that is performed during the construction period, a comprehensive work plan including all testing protocols to achieve before provisional acceptance must be presented to the Project Manager . These protocols must be submitted no later than three (3) weeks before the date of completion of testing. The Contractor is not allowed to start testing without advance that the protocol implementation has been submitted and approved by the Project Manager and representatives of the manufacturers of the equipment under test

- .6 Each protocol must clearly indicate
  - .1 title of the test;
  - .2 list of resource persons who will be present;
  - .3 measuring equipment used;
  - .4 implementation methodology;
  - .5 data tables to complete.
- .7 Unless otherwise stated, the Contractor shall perform performance tests for all equipment and structures identified quotes and plans. For some equipment, the Project Manager requires a methodology of implementation. For others, the methodology should be proposed by the Contractor and accepted by the Project Manager
- .8 Dry operation Tests and performance are made by the Contractor in collaboration with subcontractors and representatives of manufacturers. All deficiencies within these tests must be corrected prior to continuous testing
- .9 If there is an equipment failure during the tests (dry, operation and performance), they are interrupted to repair the faulty equipment. The test results obtained before the break are still valid. After repair, testing must be completed in accordance with all step of implementation Protocol
- .10 The Project Manager may reject the equipment and instruments used for the tests if it considers inadequate to obtain representative results. The Contractor shall replace at his own expense the equipment or instruments rejected by the Project Manager
- .11 The Contractor shall assume all costs associated with the preparation and execution of tests
- .12 A successful testing of performance is available only if the system operates within the conditions prescribed for carrying each processing step. Thus, if the conditions for carrying out a process subject to performance tests are different from those specified, the Contractor shall immediately notify the Project Manager of this fact. If there is any dispute between the parties as to the compliance requirements for performance testing, the Project Manager may request an independent firm to conduct an evaluation of these conditions. The evaluation report will determine the compliance or non-performance conditions. The cost of the audit will be assumed by the defaulting party.
- .13 If the conditions of implementation are compliant, the Contractor shall carry out performance tests described in the specifications. Otherwise, a meeting should be held between the Contractor and the Project Manager to determine (if applicable), the measures to ensure the tests. Possible measures may include, for example, a change in the test procedure, a method of alternative measures, a reassessment of the expected performance, a simulation of conditions recommended or deferred testing for a period of 60 days.
- .14 If changes in performance tests involve additional implementation costs for the Contractor, the necessary adjustments will be made in accordance with the requirements of the general administrative clauses.
- .15 Each trial conducted without the presence of representatives of equipment manufacturers will be considered unrealized.

### **1.3 INSTRUCTIONS TO THE OPERATING STAFF**

- .1 During commissioning, the Contractor shall explain the process of operation, operation and maintenance of equipment provided to representatives of the client and / or operating personnel. These explanations should be included in each of the maintenance and operation manuals must be available before commissioning.
- .2 These explanations should be provided by qualified staff and vendor representatives must be present at trial and put into operation. Representatives of each device must spend a minimum of four hours, in addition to testing and commissioning periods for review, with staff operating, service manuals and equipment operation.
- .3 Appropriate representatives of suppliers of equipment must be available on demand to make the detection of defects during commissioning and operation during the warranty period.

### **1.4 OPERATIONAL TESTS**

- .1 The Contractor shall provide and install equipment that are compatible with the use and installation conditions and operating equipment and materials for which it was collected or submitted.
- .2 The Contractor shall carry out commissioning, calibrate and adjust all equipment and check the points of compliance with plans and the present specifications.
- .3 The Contractor shall proceed with the help of its suppliers and subcontractors with a dry test run or support as appropriate, on all equipment and materials as requested and directed by the Project Manager, in order to verify that the specific conditions of use and operation are met. The Contractor shall, at its own expense, all skilled labor, equipment and all that is required for the tests described in this specification.
- .4 As soon as the test runs are completed by the Contractor to the satisfaction of the Project Manager, it must proceed in the presence of the Project Manager to the commissioning.

### **1.5 COMMISSIONING**

- .1 The Contractor shall perform the commissioning of each equipment system. It should take the usual precautions such as: oiling, greasing, checking to detect if there is no obstruction, etc.. It must ensure that the manufacturer's instructions are followed and respected.
- .2 Equipment and premises must be cleaned beforehand. Must provide written notice to the effect that all the devices have been put into service, all checks have been made and that all equipment supplied is free of defects in design and manufacturing.
- .3 In addition for the drinking water facilities, the Contractor shall perform disinfection according to prescribed standards of all equipment, tank, hoses, etc.. likely to come into contact with the water flowing through his works before allowing the water to be discharged into reservoirs, pipes or equipment used in the drinking water distribution.
- .4 As soon as the commissioning and corrective work (if required) is completed, the Contractor shall conduct performance testing.

## 1.6 CONTINUOUS TESTS

- .1 Before getting started, the Contractor shall notify the Project Manager that all checks, simulations, testing and calibration as well as those made by its subcontractors have been made and that all equipment and installation are functional and close to the start under its responsibility.
- .2 The Contractor shall operate and run continuously (ie nonstop 24 hours a day) for a period of 15 consecutive days the whole system subject to the contract, after the commissioning of all equipment (including all pumps).
- .3 If the operating conditions encountered during these continuous tests are not representative of actual operating conditions, the Contractor shall take, to the extent possible, the provisions required to simulate actual conditions of operation. During these tests continuously, the Contractor is fully responsible for the operation and maintenance of the works in accordance with all operating conditions defined in operating manuals and standards.
- .4 The Contractor shall provide all personnel and specialists needed to meet the demands described above. The City staff will be present during the test and should be informed of any changes and / or fix the process for its future and necessary for the operation and maintenance system operation.
- .5 If during the 15-day trial, a major component of the process has an interruption of operation, continuous testing on this piece should be resumed when this piece is restarted after repair.
- .6 If it is impossible to simulate the real conditions of operation of certain equipment forming a sub-system, lack of raw materials, the provisional approval for the equipment is automatically extended until the continuous testing for these facilities were made.
- .7 The provisional acceptance of the works will not be realized until the continuous testing has not been completed.

## 1.7 PRODUCTS

- .1 The Contractor shall proceed in the presence of Engineer and with the help of its suppliers and / or subcontractors in performance tests to verify if the required performance criteria are met. These tests are performed when the previous test runs and patches if any, are made. In some cases, functional testing and performance can be conducted simultaneously. The full performance of the tests with the performance ratio is at the expense of the Contractor. Test protocols must be submitted to Project Manager for approval 20 days before the start of the tests, the tests may be carried out without approved protocols. The tests to be described in different sections of this specification

- .2 For each performance test, a full report must be submitted containing the results. Three (3) summary report copies.
  - .1 The test protocol used;
  - .2 Conditions during the tests;
  - .3 Instrumentation schemes;
  - .4 Interpretation and discussion of the results;
  - .5 Conclusions and recommendations.
- .3 The ratio of performance testing at the manufacturer's plant must be provided separately from the tests conducted at the site
- .4 With the exception of equipment whose performance is judged on the basis of tests carried out at the factory of the manufacturer and / or supplier's works, if the results of an initial performance test to the site does not meet the specified and the conditions in which comply with the requirements of this specification requirements, the Contractor shall provide, at its expense, necessary to obtain the specified performance modifications. These changes may involve, for example, addition of equipment, calibration or adjustment of certain systems, etc.. The Contractor shall provide the Project Manager, for approval, corrective actions it intends to make. Following the completion of the appropriate patches, a second performance test must take place within a maximum period of 60 days.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 GENERAL**

- .1 This section specifies the general requirements and procedures for the preparation of manuals assembly, performance, operation, maintenance and drawings in accordance with the works that are explicitly requested in the contract or that the Project Manager considers necessary for the operation and maintenance of such works.
- .2 This section covers all sections of the specifications.

### **1.2 SERVICE MANUAL AND MAINTENANCE**

- .1 Provide operation and maintenance records and incorporate them in the manual.
- .2 The forms provided must be identified with the project. They must refer to the number of the equipment shown on the plans and specifications or a detail plans.
- .3 Operating and maintenance records must be approved prior to final inspection by the Project Manager who will retain final copies.
- .4 Operating records must include the following:
  - .1 The diagrams;
  - .2 A description of each system / installation and operating controls / regulation;
  - .3 A description of how each system with program setpoints changes;
  - .4 Instructions for each operating system / installation of each element;
  - .5 A description of measures to be taken in the event of equipment failure;
  - .6 A chart of devices and a flow diagram;
  - .7 A color code.
- .5 Maintenance records must include the following:
  - .1 Instructions on maintenance, repair, operation, and how to identify defects for each piece of equipment;
  - .2 Information regarding the frequency of tasks, as well as tools and time required for all of these tasks.
- .6 The performance records must include the following:
  - .1 The performance data provided by the equipment manufacturer stating the point of use of the equipment once the commissioning is complete;
  - .2 The results of performance tests of the equipment;
  - .3 All other data specific performance specified elsewhere in the contract documents;
  - .4 Test reports, adjusting and balancing systems, in accordance with the requirements of sections;
  - .5 When a new submission of documents or samples, notify the Project Manager in writing of the changes made other than those required by the latter.
- .7 Introduction:
  - .1 The manual must consist of flip books (size 215 x 280) and connected with a three (3) rings rigid vinyl cover. These books are specifically for all equipment sold by suppliers to the Contractor and installed by the Contractor. A PDF version on a CD must also be provided.

- .2 The Contractor must provide a manual for work, and/or building, and for each structure and/or building the Contractor shall provide a manual by discipline.
- .3 Each manual delivered to the Project Manager must be written in English. Upon delivery of the equipment to the site, the Contractor must ensure that the supplier gets the assembly manual operation, operation and maintenance even if the manual is in English and any document in English unilingual be translated and written in French before being issued.
- .4 The manual should be divided into sections as indicated below and each section must be clearly identified by a tab labeled coated celluloid attached to the sheet division rigid paper. A comprehensive manual must be prepared by the Contractor including each piece of equipment delivered and installed on the project.
- .5 The drawings in line with execution of the works concerned are placed in pouches attached to the assembly manuals, operation, operation and maintenance.
- .6 The contents of each manual must include:
  - .1 One page identifying each stakeholders:
    - .1 the owner names with the complete address and contact person;
    - .2 the name of the general contractor with complete address and contact person;
    - .3 subcontractor with the complete address and contact person;
    - .4 the name of the supplier of each product with the complete address and contact person.
  - .2 A page where there are:
    - .1 a table of contents describing the equipment manual with the identification of the equipment described on plans.
  - .3 A section for each piece of equipment including all the following information:
    - .1 identification of the equipment;
    - .2 identification number described on plans;
    - .3 make and model;
    - .4 location of the equipment: specific building;
    - .5 order number of the supplier;
    - .6 model number;
    - .7 serial number;
    - .8 date of delivery;
    - .9 supplier;
    - .10 general (brochure describing the equipment supplier);
    - .11 procedure in case of damage during shipping, gaps, errors;
    - .12 storage of equipment, whether or not assembled;
    - .13 Installation drawings with detailed dimensions;
    - .14 general guidelines recommended for installation;
    - .15 anchoring drawings where applicable;
    - .16 electrical connections with appropriate drawings;
    - .17 mechanical connections and plumbing with appropriate drawings;
    - .18 relationship between the relevant equipment and related equipment;
    - .19 general and specific safety;
    - .20 drawings of the control system, the control box components and description of the front of the case;
    - .21 starting and stopping;
    - .22 automatic manual: normal operation;
    - .23 abnormal operation: troubleshooting, emergency instructions;



- .24 subjection to other equipment;
- .25 thermal and other protection;
- .26 adjustments and calibration;
- .27 signals, alarms and telemetry;
- .28 operating hours counter;
- .29 timer operation;
- .30 heating and ventilation;
- .31 cleaning frequency, method, products;
- .32 lubrication frequency, method, products;
- .33 adjustment frequency, method, products;
- .34 list of things to check;
- .35 guide solutions to problems;
- .36 procedures in case of damage or major repairs;
- .37 complete parts list with exploded view of the equipment and numbered for positive identification documents;
- .38 list of common wear parts with name, address and telephone number of the suppliers;
- .39 list of local experts to consult for repair (eg. electrician, plumber, etc.) with name, address and telephone number;
- .40 inventory of parts and finished products;
- .41 report signed and dated;
- .42 calibration values;
- .43 method of calibration and / or verification;
- .44 start date of the warranty period of each device;
- .45 specific guarantee exceeding the general security;
- .46 Plans "as-built" including amendments, addenda and notices of changes replicated to own the building plans provided for signed and dated;
- .47 storage equipment, whether or not assembled;
- .48 Installation dimensions with detailed drawings;
- .49 general guidelines recommended for installation;
- .50 anchoring drawings where applicable;
- .51 electrical connections with appropriate drawings;
- .52 mechanical connections and plumbing with appropriate drawings;
- .53 relationship between the relevant equipment and related equipment;
- .54 general and specific safety;
- .55 drawings of the control system, the control box components and description of the front of the case;
- .56 starting and stopping;
- .57 normal operation: manual, automatic.

Note: The manual included in the drawings can be derived in part or in whole of shop drawings provided that they are free of annotations.

- .7 The contents of each manual must be adjusted with works or equipment specified in "Technical Terms". However, the requirements of this section must be complied by the Contractor with respect to sections, principle and manual format.
- .8 Verification:
  - .1 All documents must be submitted to the Project Manager in one (1) copy for verification and approval. After review and acceptance of the documents submitted in the original form, the Contractor shall produce and provide two (2) additional copies. Textbooks must be customized by building and/or

work, and, for each discipline and/or for all municipal equipment (fire hydrant, pipe, valve, etc.). To the extent that the first review of the documents reveal that they are incomplete and/or inconsistent with this section, the Contractor must make corrections to the copies that will be returned to him. After correction, the Project Manager conducts a second examination which may be required again if the documents do not prove to be compliant. Once the document is corrected and accepted, the Contractor must submit to the Project Manager two (2) additional copies. The final approved version of each manual should also be submitted as PDF files burned onto a DVD. All costs associated with audits and comments made from the second review of the documents are the responsibility of the Contractor.

### **1.3 STAFF TRAINING, OPERATION AND MAINTENANCE**

- .1 Provide tools, equipment and service personnel of manufacturers to provide training in French, operating and maintenance personnel in the operation, the control, adjustment, diagnosis of problems and maintenance all systems and equipment during normal working hours and before acceptance and delivery of systems and equipment.
- .2 Unless otherwise specified in the particular technical specifications, representatives of each device must spend a minimum of four (4) hours in addition to the periods of testing and commissioning for the training of staff of the project owner. Consequently, considering that the training will be held at a date different from the tests and that in this case a visit to the site for specific training is required.
- .3 When other requirements to different sections are specified, manufacturers must conduct demonstrations and train staff.
- .4 The training should be based on the contents of the Operations and Maintenance Manual, drawings "as built" and other audiovisual materials. The training must be provided and presented in the form of PowerPoint.
- .5 When necessary, the Project Manager can record these demonstrations on video tape for future reference.
- .6 For all courses, the Contractor must provide a certificate signed by the representatives of the Contracting Agency.

**END OF SECTION**