

**Part 1 General****1.1 LOCATION OF WORK**

- .1 The work of this contract includes the construction of a concrete slab onto an existing slab, the widening of the storage surface area with a new slab on grade, demolition and replacement of the wheelguard, installation of a new lamp post base and relocation of the lamp post, the redevelopment and extension of the concrete block wall, and all related landscaping. The works also include the construction and installation of floating pontoons and an aluminum ramp. The work is performed in the harbour of Cap-des-Rosiers.

**1.2 LIST OF WORK DESCRIPTIONS**

- .1 This list is not necessarily complete and does not relieve the Contractor of his responsibility to complete any other necessary work, modification or changes in order to complete satisfactorily the work of in this project.

**1.3 DESCRIPTION OF WORK**

- .1 Demolish and rebuild two stairs, as illustrated on the drawings.
- .2 Demolish the existing steel wheel guard, and replace it with a new steel and wood wheel guard, as illustrated on the drawings.
- .3 Remove the catch basin manhole located in the parking lot, and backfill. The catch basin manhole is used as infiltration clean out, it does not have input or output conduits.
- .4 Install a drainage system behind the concrete block low wall, as illustrated on the drawings.
- .5 Remove the existing block wall, retaining all the existing blocks and rebuild the block wall. The new wall will be longer, therefore, provide an additional amount of blocks and recover the existing blocks, as illustrated on the drawings.
- .6 Remove the three street lights, retrieve and reinstall a double lamppost on a new base with a modified bolt circle, as illustrated on the drawings.
- .7 Perform electrical work and lighting connection as required in the specifications and in accordance with the electrical code of Québec.
- .8 Build a new concrete slab to the following requirements:
  - .1 Before building this new concrete slab, inject cement to fill the voids under the slab according to the requirements of this Specification and as illustrated on the drawings.
  - .2 A slab already exists on site and was built in the 50s. Despite its age, it is still in good condition. This slab will be retained and a new concrete slab will be poured over it.
  - .3 Part of the new slab will be built on the ground. The Contractor shall excavate a layer of material and compact it according to the requirements of this Specification.

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- .9 Change a landing and the railing of a ramp and build a work platform, as illustrated on the drawings.
- .10 Remove and replace the stop edges and adjust the profile of the parking lot, as shown on the drawings.
- .11 Build and install pontoons and an aluminum ramp, and adjust certain existing anchoring elements toward the dismantling for the winter period elements of the existing anchors, dismantling for the winter period, as shown on the drawings.
- .12 At work completion, the Contractor shall provide an as-built plan in Autocad format.

#### **1.4 SCOPE OF WORK**

- .1 Work of this project includes the supply of all materials, labour, tools, equipment, protection and transportation needed to build and complete the project in accordance with the requirements specified in the various sections of the specifications to produce a uniform effect across the property.

#### **1.5 REQUIRED DOCUMENTS**

- .1 Maintain at job site, one copy of each document as follows:
  - .1 Contract drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed shop drawings.
  - .5 List of outstanding shop drawings.
  - .6 Change orders.
  - .7 Other modifications to contract.
  - .8 Field test reports.
  - .9 Copy of approved work schedule.
  - .10 Health and safety plan and other safety related documents.
  - .11 Other documents as specified.

#### **1.6 MATERIALS PROCUREMENT**

- .1 In his bid, the Contractor shall provide for the purchase, production, and transportation of all materials to complete the work herein required.
- .2 The Contractor will reuse the existing blocks of the wall, or if he prefers, to use a new type of block, but must then dispose of the old blocks at own expense.

#### **1.7 USE OF PREMISES BY THE CONTRACTOR**

- .1 The work site may be used until the substantial achievement of the work.
- .2 The use of the premises is restricted to areas necessary for the execution of works and access.
- .3 Coordinate the use of peripheral areas as directed by the Departmental Representative.

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**1.8 STAKING**

- .1 Assume full responsibility for staking out the work and perform the task to full extent as to location, lines and levels indicated.
- .2 Before work inception, the Contractor shall ascertain all measurements on location and notify Departmental Representative of any error or discrepancy.

**1.9 INSPECTION OF PREMISES**

- .1 Prior to submitting a bid, it is the responsibility of the Contractor to travel to the job site and obtain all the necessary information regarding the nature and scope of the Work, and acknowledge all the conditions that may affect the execution of said works.
- .2 By the very fact of filing a bid, the Contractor acknowledges having secured the nature and geographic location of the work, the general and local conditions, especially weather or climate conditions, the roughness of water, tidal levels, specific physical conditions at the work site, the nature of the soil and seabed, the nature of the material to be dredged, and any other circumstance likely to affect the execution conditions of the contract and the value of the work.

**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               MEASUREMENT**

.1            Measurement method:

- .1            The provisions for labour, materials, tools, equipment, protection, transportation, administration fees, profit and necessary financing, etc., required to complete the work of this project are to be included in each of the items mentioned below, except where otherwise indicated.
- .2            Items measured as a global unit shall be broken down and submitted within ten (10) days after contract award. For the mobilization and demobilization, the broken down costs shall be submitted for each intended piece of equipment. Any item that cannot be included in a specific measurement item shall be included in the Site Layout item.
- .3            The method of measurement of labour, tools or materials categories, constituting the work will be the following:

.1            Lump sum work:

Item no 1: Site layout

This item will be measured globally and includes the installation of a construction trailer with the required equipment, facilities, and mobilization of workers and equipment. This includes all the elements of Division 01 of the specifications for this portion of the project. The site layout is paid in proportion to the payment claims. Provide a detailed breakdown of the cost of the Site Layout item within two (2) weeks of contract award or sooner if requested by the Departmental Representative.

Item no 2: Demolition

This item will be measured globally and includes the equipment, materials and labour required to perform the demolition of wooden stairs, stairs with a wooden handrail, precast concrete stairs and the dismantling of the catch basin manhole; including electrical wiring, light poles, saw cuts, the removal of pavement within the limits shown on the drawing and disposal at an approved site. The bid price will also include haulage and off-site disposal costs of materials. At the end of the work, the surface should be clean and free of debris.

Item no 3: Electrical

This item will be measured globally and includes the equipment, materials and labour required to perform the work for setting up and connecting the electrical conduits as specified on the drawing. The tender price must include the excavation of the trench, backfill, compaction, PVC piping, wiring for connecting the lamppost, two (2) hazard indicators; provide a new photocell and connection as well as the connection inside the fishermen's building and to the existing system. In addition, excavation, the supply and installation of a

new lamppost base, the recovery and installation of a double lamppost with a modified bolt circle and the installation will be included in this budgetary item.

Item no 4: Prefabricated concrete block low wall

This item will be measured globally and includes the equipment, labour, specialized machinery, subcontractors (if required) necessary to perform the work:

- a) Removal and recovery of precast concrete blocks, temporary storage of the blocks for reuse.
- b) Excavation without distinction as to the soil (rock or unconsolidated deposit).
- c) The supply of new blocks of precast concrete, precast concrete blocks for the changes of direction, and integration of the recovered blocks into the new structure. Expect to mix the new blocks with the recovered blocks for a more uniform appearance. The Contractor has the option to integrate the existing concrete blocks in the wall or he may use split face universal slope block.
- d) The supply and installation of backfill materials, clean stone and geotextile.

The bid price will also include shipping and off-site disposal costs of non-recoverable material and all related works required for the execution of the implementation work of the concrete beneath the existing concrete slab.

Item no 5: Drainage system behind the concrete block low wall

This item will be measured globally and includes the equipment, labour, specialized machinery, subcontractors (if required) necessary to perform the work:

- a) Excavation without distinction as to the soil (rock or unconsolidated deposit).
- b) Course, embedding and compaction.
- c) Included in the work, the opening in the steel sheet piles.
- d) The supply and installation of piping of different diameters and accessories (caps, elbows, etc.).
- e) The supply and installation of catch basin manholes with all accessories, frame and grate in gray cast iron, trapping and 450 mm deep holding tank.

The bid price will also include shipping and off-site disposal costs of non-recoverable material and all related works required for the execution of the implementation work of the concrete beneath the existing concrete slab.

Item no 6: Concrete fill beneath the concrete slab

This item will be measured globally with a fixed quantity and include the equipment, labour, specialized machinery, subcontractors (if required) necessary to perform the work:

- a) The supply and placement of concrete in accordance with the requirements set forth in the specifications.

The bid price will also include shipping and off-site disposal costs of non-recoverable material and all related works required for the execution of the implementation work of the concrete beneath the existing concrete slab.

Item no 7: Reinforced concrete slab

This item will be measured globally and includes the equipment, labour, materials, subcontractors (if required) necessary for the implementation and supply of reinforcement, and placement of concrete, without limitation:

Concrete slab onto old concrete slab:

- a) Cleaning with a mechanical street sweeper.
- b) The making of a rough surface.
- c) The supply and application of a binding agent.
- d) Watering the slab before pouring the concrete.
- e) The supply and installation of reinforcement on concrete block spacers.
- f) The supply and installation of all expansion joints, construction joints and control joints as indicated on the drawings.
- g) The supply and placement of membranes on the existing guardrail as indicated on the drawings.

New concrete slab onto granular material:

- a) Excavation without distinction as to the soil (rock or unconsolidated deposit).
- b) The supply, transport, and placement of materials called for.
- c) Grading and compaction.
- d) The approval of materials (testing laboratory costs).
- e) Watering the ground before pouring the concrete.
- f) The supply and installation of reinforcement on concrete block spacers.
- g) The supply and installation of all expansion joints, construction joints and control joints, and the asphalt board as specified on the drawings.

The bid price will also include shipping and off-site disposal costs of non-recoverable material as well as all the work related to the placement of the concrete slab.

Item no 8: Wooden stairs and work platform:

This item will be measured globally and includes the equipment, labour, materials, necessary to execute the construction and repair of existing wooden stairs on the timber cribwork as specified on the drawings.

- a) Rehabilitation of existing stairs and reconstruction of the guardrails with a removable guardrail system.
- b) Two (2) work platforms.
- c) Landing with ramp (modification) and reconstruction of the guardrail.
- d) Stairs with ramp is to be reconstructed (ramp only) with two (2) guardrails.

The bid price will also include shipping and off-site disposal costs of non-recoverable material as well as all the related work required for the construction of the wooden stairs and ramp at the correct elevations.

Item no 9: Stairs in precast concrete

This item will be measured globally and includes the equipment, labour, materials, necessary to execute the construction and adjustment with the existing features. The bid price shall also include the aluminum guardrail with the anchors as indicated on the drawing.

The bid price will also include shipping and off-site disposal costs of non-recoverable material and all related works required for the execution of the implementation work of the precast concrete stairs.

Item no 10: Wheel guard in treated wood

This item will be measured globally and includes the equipment, labour, specialized machinery, subcontractors (if required) necessary to cut the existing sheet pile at the required height for the installation and supply of the treated wood, the galvanized bolting systems, the galvanized (cold) steel plates and L-shaped angles, the openings or weepholes (Barbican); the bid price shall include the repair of the openings in the existing sheet pile located at the stairs and work platform, galvanized (cold) steel plates and L-shaped angles, galvanized steel plates or blocks (cold), galvanized bolting system, welding and adjustment with the existing features as required in the plans and specifications.

The bid price will also include shipping and off-site disposal costs of non-recoverable material and all related works required for the execution of the implementation work of the precast concrete stairs of the wheelguard in treated wood.

Item no 11: Pontoons and footbridge

This item will be measured globally. The price tendered shall include the equipment, labour and tools necessary to supply the materials, fabrication,

installation in the basin, adjustment with the existing anchor blocks and, after acceptance by the Departmental Representative, dismantling for the winter period. The bid price includes adjusting the main anchoring block and the installation of the guard rail on the block, including the mooring cleats as shown on the drawings and required in the specifications.

The bid price will also include shipping and off-site disposal costs of non-recoverable material and all related works required for the fabrication and installation of the pontoons and the footbridge.

Item no 12: Landscaping

This item will be measured globally and includes the equipment, labour, tools and specialized machinery needed to provide the landscaping of the site including the MG-20 between the parking lot and the stop edges and the concrete wall; the reshaping of the gravel layer in the areas affected by the works and the relocation and installation of stop edges with their anchor pins.

The bid price will also include shipping and off-site disposal costs of non-recoverable material and all related works required for landscaping.

.2 Unit price item:

Item no 13: Decontamination of the excavated soils

This item will be measured in metric ton and includes, the equipment, labour, environmental consultant's expenses and the expenses of the laboratory (so required) needed to execute the works of decontamination. This item will also have to include the off-site expedition in an accepted site, materials contaminated of category A-B and B-C.

The bid price will have to include the related works necessary for the execution of the works of excavation of the contaminated materials.

**1.2 APPLICATIONS FOR PROGRESS PAYMENT**

- .1 Make applications for monthly payment on account as Work progresses.
- .2 Date applications for payment last day of agreed monthly payment period and ensure amount claimed is for value, proportionate to amount of Contract, of Work performed and Products delivered to Place of Work at that date.

**1.3 FINAL PAYMENT**

- .1 Submit application for final payment when Work is deemed completed.
- .2 Departmental Representative will, no later than ten (10) days after receipt of application for final payment, review Work to verify validity of application. Departmental Representative will give notification that application is valid or give reasons why it is not valid, no later than five (5) days after reviewing Work.



- .3 Departmental Representative will issue final certificate for payment when application for final payment is found valid.

**Part 2            Product**

**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 SECTIONS**

- .1        01 11 01 – Work-related General Information.
- .2        01 35 29.06 – Health and safety requirements.
- .3        01 35 43 – Environmental procedures.

**1.2               ADMINISTRATIVE**

- .1        Submit required documents and samples to Departmental Representative for review. Submit promptly and in orderly sequence to not cause delay in work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.
- .2        Do not proceed with work subject to submittals or mock-ups until submittals are fully reviewed and approved.
- .3        Characteristics shown on shop drawings, product data, samples and mock-ups shall be indicated in metric units.
- .4        Where items or information is not produced in SI Metric units, or where characteristics are not provided in metric units (SI), converted values are acceptable.
- .5        Verify documents before handing them to the Departmental Representative. This preliminary review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .6        Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract documents stating reasons for deviations.
- .7        Verify field measurements and that affected adjacent work are coordinated.
- .8        Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9        Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.
- .10       Keep one reviewed copy of each submission on site.

**1.3               SHOP DRAWINGS AND PRODUCT DATA SHEETS**

- .1        The expression "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of work at hand.

- .2 Shop drawings to indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .3 Allow five (5) days for Departmental Representative's review of each submission.
- .4 Adjustments made on shop drawings by Departmental Representative are not intended to change contract price. If adjustments affect value of work, state such in writing to Departmental Representative prior to proceeding with work.
- .5 Make changes in shop drawings as Departmental Representative may require, consistent with contract documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .6 Accompany submissions with transmittal letter, in duplicate, containing:
  - .1 date;
  - .2 project title and number;
  - .3 Contractor's name and address;
  - .4 the title or designation of each drawing, data sheet and sample as well as the number of items submitted;
  - .5 any other relevant data.
- .7 Documents submitted to bear or indicate the following:
  - .1 date and revision dates;
  - .2 project title and number;
  - .3 name and address of the following persons:
    - .1 the subcontractor;
    - .2 the supplier;
    - .3 the manufacturer;
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with contract documents;
  - .5 Details of appropriate portions of work as applicable:
    - .1 Materials and fabrication details;
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances;
    - .3 Setting or erection details;
    - .4 Capacities such as power, flow or content;
    - .5 Performance characteristics;
    - .6 Reference standards;
    - .7 Operating weight;
    - .8 Wiring diagrams;
    - .9 Single line and schematic diagrams;

- .10 Relationship to adjacent work.
- .8 After Departmental Representative's review of shop drawings and data sheets, distribute copies.
- .9 Submit three (3) hard copies of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .10 Submit three (3) copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .11 Submit three (3) copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
- .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets (MSDS) concerning impedances, hazards and safety precautions.
- .12 Delete information not applicable to project.
- .13 Supplement standard information to provide details applicable to project.
- .14 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of work may proceed. Where shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of work may proceed.
- .15 The review of shop drawings by PSPC is for sole purpose of ascertaining conformance with general concept.
- .1 This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and contract documents.
- .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of work of sub-trades.
- .16 Submit shop drawings or technical data sheets for the following:
- Foam billets;
  - Elastomeric sealant;
  - Mix designs (concrete);
  - Bolts, screws, nails, etc.;
  - Geotextile;
  - Precast concrete stairs;
  - Aluminum footbridge;
  - Lamppost base;
  - Treated lumber (w/preservative);

- Steel for fixing the pontoons.

**1.4 CERTIFICATES AND MINUTES**

- .1 Submit relevant documents required by CSST (workers' compensation board) immediately after notice of acceptance of Offer.

**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**

**GENERAL NOTE:** in this section the term “site” includes all the facilities located at the site where the work is taking place (construction site, buildings, access, infrastructure, car parks, bays, etc.).

### **1.1           REFERENCES**

- .1   Province of Québec
  - .1       Loi sur la santé et la sécurité du travail, L.R.Q., c. S-2.1.
  - .2       Code de sécurité pour les travaux de construction, L.R.Q., c. S-2.1, r.4.

### **1.2           ACTION/INFORMATIONAL SUBMITTALS**

- .1   Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2   Submit to Departmental representative, and the CNESST the site-specific prevention program, as outlined in the article “GENERAL REQUIREMENTS”, at least 10 days prior to the start of work.
- .3   Departmental Representative will review Contractor’s site-specific prevention program and provide comments to Contractor within 10 days after receipt of the document. Revise plan as appropriate and resubmit to Departmental representative within 5 days after receipt of comments from Departmental Representative. Departmental Representative reserves the right not to authorize the start of work on the construction site as long as the content of the prevention program is not satisfactory. The Contractor shall then update his prevention program and resubmit it to the Departmental Representative if the scope of work changes or if the working methods of the Contractor differ from his initial plans or for any other applicable new condition.
- .4   Departmental Representative’s review of Contractor’s site-specific prevention program should not be construed as approval of the program and does not reduce the Contractor’s overall responsibility for construction Health and Safety during the work.
- .5   At least once a week, submit copies of Contractor’s authorized representative’s construction site health and safety inspection reports to Departmental Representative.
- .6   Submit to Departmental Representative within 24 hours a copy of any inspection report, correction notice or recommendation issued by Federal, Provincial and Territorial health and safety inspectors.
- .7   Submit to Departmental Representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard.

The investigation report shall contain at least the following:

- 1.   date, time and place of accident;
- 2.   name of sub-contractor involved in the accident;
- 3.   number of persons involved and condition of wounded;
- 4.   witness identification;

5. detailed description of tasks performed at the time of the accident;
  6. equipment being used to accomplish the tasks performed at the time of the accident;
  7. corrective measures taken immediately after the accident;
  8. causes of the accident;
  9. preventive measures that have been put in place to prevent a similar occurrence.
- .8 Submit to Departmental Representative WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittals and in Section 01 47 15 – Sustainable requirements: Construction. Contractor to maintain copy of MSDS on site.
- .9 Medical Surveillance: where prescribed by legislation, regulation or prevention program, submit certification of medical surveillance for construction site personnel prior to commencement of Work, and submit additional certifications for any new construction site personnel to Departmental Representative.
- .10 Submit to Departmental Representative an on-site Emergency Response Plan at the same time as the prevention program. The Emergency Response plan must contain the elements listed in the article “GENERAL REQUIREMENTS” of this section.
- .11 Submit to Departmental Representative copies of all training certificates required for the application of the prevention program, in particular (if applicable) for the following:
- .1 first aid in the workplace and cardiopulmonary resuscitation;
  - .2 work likely to release asbestos dust (mandatory for all work where asbestos is present);
  - .3 work in confined spaces (mandatory for all work in confined spaces);
  - .4 lockout-tagout procedures (mandatory for all work requiring lockout);
  - .5 safely operating forklift trucks (mandatory for all forklift usage);
  - .6 safely operating elevating work platforms (mandatory for the use of all elevating platforms);
  - .7 any other requirement of Regulations or the safety program.

In addition, the certifications of the training entitled Cours de santé et sécurité générale pour les chantiers de construction (General Health and Safety Training for Construction Sites) shall be available on demand on the construction site.

- .12 Contractor must submit to the Departmental Representative and to CNESST (Commission des normes, de l'équité, de la santé et de la sécurité du travail) a copy signed and sealed by engineer of all plans and certificates of compliance required pursuant to the Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the construction industry) or by any other legislation or regulation or by any other clause in the specifications or in the contract. The Contractor must also submit a certificate of conformity signed by an engineer once the facility for which these plans were prepared has been completed and before a person uses the facility. A copy of these documents must be available on site at all times.

### **1.3 PRODUCTION OF NOTICE OF SITE OPENING**

- .1 Notice of construction site opening shall be submitted to CNESST before work begins. A copy of such notice and acknowledgment of receipt from CNESST shall be submitted to Departmental Representative.  
  
At work completion, a notice of construction site closing shall be submitted to CNESST, with copy to Departmental Representative.
- .2 The Contractor shall recognize the responsibility of being the Principal Contractor of the project and identify himself as such in the notice of construction site opening he provides to CNESST.
- .3 The Contractor shall accept to divide and identify the construction site adequately in order to define time and space at all times throughout the course of the project.

### **1.4 HAZARD ASSESSMENT**

- .1 The contractor must perform construction site specific safety hazard assessment related to project.

### **1.5 MEETINGS**

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.
- .2 Contractor's representative with decision power must attend any meetings at which construction site safety and health issues are to be discussed.
- .3 If it is anticipated that there will be 25 workers or more on the construction site at any given time, the Contractor shall set up a worksite committee and hold meetings as required by the Code de sécurité pour les travaux de construction (S-2.1, r. 4) (Safety code for the construction industry). A copy of the minutes of the meetings of the committee shall be provided to the Departmental Representative no later than 5 days after the committee meeting.

### **1.6 REGULATORY REQUIREMENTS**

- .1 Do work in accordance with Section 01 41 00 - Regulatory Requirements.
- .2 Comply with all legislation, regulations and standards applicable to the construction site and its related activities.
- .3 Comply with specified standards and regulations to ensure safe operations on a site containing hazardous or toxic materials.
- .4 Always use the most recent version of the standards specified in the Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the construction industry), notwithstanding the date indicated in that Code.

### **1.7 COMPLIANCE REQUIREMENTS**

- .1 Comply with the Loi sur la santé et la sécurité du travail (L.R.Q., c. S-2.1) (Act Respecting Occupational Health and Safety) and the Code de sécurité pour les travaux de construction (S-2.1, r. 4.) (Safety code for the construction industry) in addition to respecting all the requirements of this Specification Manual.



## **1.8 RESPONSIBILITY**

- .1 The Contractor must acknowledge and assume all the tasks and obligations which customarily devolve upon a principal Contractor under the terms of the Loi sur la santé et la sécurité du travail (L.R.Q., ch. S-2.1) (Act Respecting Occupational Health and Safety) and the Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the construction industry).
- .2 The Contractor must be responsible for health and safety of persons on construction site, safety of property on construction site and for the protection of persons adjacent to construction site and the environment to the extent that they may be affected by conduct of the work.
- .3 No matter the size or location of the construction site, the Contractor must clearly define the limits of the construction site by physical means and respect all specific regulation requirements applicable in this regard. The means chosen to define the limits of the construction site must be submitted to the Departmental Representative.
- .4 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Prevention Plan.

## **1.9 GENERAL REQUIREMENTS**

- .1 Before undertaking the work, prepare a site-specific prevention program based on the hazards identified according to the article "HAZARD ASSESSMENT" and the article "RISKS INHERENT TO THE WORKSITE" in this section. Apply this program in its totality from the start of the project until demobilization of all personnel from the construction site. The prevention program shall take into consideration the specific characteristics of the project and cover all the work to be executed on the construction site.

The safety program must include at least the following:

- .1 company safety and health policy;
- .2 description of the stages of the work;
- .3 total costs, schedule and projected workforce curves;
- .4 flow chart of safety and health responsibilities;
- .5 physical and material layout of the construction site;
- .6 risk assessment for each stage of the work, including preventive measures and the procedures for applying them;
- .7 identification of the preventive measures relative to the specific risks inherent to the worksite indicated in the article "RISKS INHERENT TO THE WORKSITE";
- .8 identification of preventive measures for health and safety of employees and / or public works site as indicated in the article "SPECIFIC REQUIREMENTS FOR THE HEALTH AND SAFETY OF OCCUPANTS AND THE PUBLIC";
- .9 required training;
- .10 procedures in case of accident/injury;
- .11 written commitment from all parties to comply with the safety program;
- .12 construction site inspection checklist based on the preventive measures;
- .13 emergency response plan which shall contain at minimum the following:

- .1 construction site evacuation procedures;
- .2 identification of resources (police, firefighters, ambulance services, etc.);
- .3 identification of persons in charge of the construction site;
- .4 identification of the first-aid attendants;
- .5 communication organizational chart (including the person responsible for the site and the Departmental Representative);
- .6 training required for those responsible for applying the plan;
- .7 any other information needed, in the light of the construction site's characteristics.

Departmental Representative will provide the Contractor with the evacuation procedure of the site, if any; it will then match the procedure with that of the construction site and submit to the Departmental Representative.

- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted in the prevention program and may request resubmission with correction of deficiencies or concerns.
- .3 In addition to the prevention program, during the course of the work the Contractor shall prepare and submit to the Departmental Representative specific written procedures for any work having a high risk factor of accident (for example: demolition procedures, specific installation procedures, hoisting plan, procedures for entering a confined space, procedures for interrupting electric power, etc.) or at the request of the Departmental Representative.
- .4 The Contractor shall plan and organize work so as to eliminate the danger at source or ensure collective protection, thereby minimizing the use of personal protective equipment.
- .5 Equipment, tools and protective gear which cannot be installed, fitted or used without compromising the health or safety of workers or the public shall be deemed inadequate for the work to be executed.
- .6 All mechanical equipment (for example, but not limited to: hoisting devices for persons or materials, excavators, concrete pumps, concrete saws) shall be inspected before delivery to the construction site. Before using any mechanical equipment, the Contractor shall obtain a certificate of compliance signed by a qualified mechanic dated less than a week prior to the arrival of each piece of equipment on the construction site; the certificate shall remain on the construction site and transmitted to the Departmental Representative on demand.
- .7 Ensure all inspections (daily, periodic, annual, etc.) for the hoisting devices for persons or materials required by the current standards are carried out and be able to provide a copy of the inspection certificates to the Departmental Representative on demand.
- .8 The Departmental Representative may at all times, if he suspects a malfunction or the risk of an accident, order the immediate stoppage of any piece of equipment and require an inspection by a specialist of his choice.
- .9 The Departmental Representative must be consulted for the storage location of gas cylinders and tanks on the construction site.

## **1.10 RISKS INHERENT TO THE WORK SITE**

- .1 In addition to the risks related to the tasks to be carried out, the personnel responsible for the execution of the work on the construction site will be exposed to the following risks,

inherent to the area where the work will be performed. Contractor to include these elements in his prevention program, without limitation.

At the location of their work, there is the presence of:

- .1 Potentially unstable soils.
- .2 A body of water nearby.

## **1.11 UNFORESEEN HAZARDS**

- .1 Whenever a source of danger not defined in the specifications or identified in the preliminary construction site inspection arises as a result or in the course of the work, the Contractor must immediately suspend work, notify the person responsible for health and safety on the construction site, take appropriate temporary measures to protect the workers and the public and notify Departmental Representative, both verbally and in writing. The Contractor must then do the necessary modifications to the prevention program or apply the security measures required in order to resume work.

## **1.12 PERSON RESPONSIBLE FOR HEALTH AND SAFETY**

- .1 If the construction site meets the requirements of article 2.5.3 of the Code de la sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the construction industry), the Contractor needs to hire a competent person authorized as a safety officer and appoint this person full time from the beginning of the work. This person's tasks shall solely be dedicated to the management of health and safety on the construction site. This safety officer must have the following qualifications:
  - .1 have a safety officer certificate issued by the CNESST since at least five [5] years;
  - .2 have site-related working experience specific to the activities associated with the present project;
  - .3 have working knowledge of occupational health and safety regulations in the workplace;
  - .4 be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter the construction site to perform work;
  - .5 be responsible for implementing, enforcing in detail and monitoring site-specific Contractor's Health and prevention program;
  - .6 be on construction site at all times during execution of work;
  - .7 inspect the work and ensure compliance with all regulatory requirements and those indicated in the contract documents or the site-specific prevention program;
  - .8 keep a daily log of actions taken and submitting a copy to Departmental Representative each week.

The safety officer's certificate shall be submitted to the Departmental Representative before the start of the work.

- .2 When the hiring of a safety officer is not required or if this person is hired by the Departmental Representative, the Contractor shall designate a competent person to supervise and take responsibility for health and safety, no matter the size of the construction site or how many workers are present at the workplace. This person shall be on construction site at all times and be able to take all necessary measures to ensure the health and safety of persons and property at or in the immediate vicinity of the construction site and likely

to be affected by any of the work. The Contractor shall submit the name of this person to the Departmental Representative before the start of work.

### **1.13 POSTING OF DOCUMENTS**

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on construction site in accordance with Acts and Regulations of the Province, and in consultation with Departmental Representative.
- .2 At a minimum, the following information and documents must be posted in a location readily accessible to all workers:
  - .1 notice of construction site opening;
  - .2 identification of principal Contractor;
  - .3 company OSH policy;
  - .4 site-specific prevention program;
  - .5 emergency plan;
  - .6 minutes of worksite committee meetings;
  - .7 names of worksite committee representatives;
  - .8 names of the first-aid attendants;
  - .9 action reports and correction notices issued by CNESST.

### **1.14 INSPECTION OF THE CONSTRUCTION SITE AND CORRECTION OF NON-COMPLIANCES**

- .1 Inspect the construction site and complete the construction site inspection checklist and submit it to the Departmental Representative in accordance with the article "ACTION AND INFORMATIONAL SUBMITTALS" in this section.
- .2 Immediately take all necessary measures to correct any situations deemed non-compliant during the inspections mentioned in the previous paragraph or noticed by the authorities having jurisdiction or the Departmental Representative or his agent.
- .3 Submit to Departmental Representative written confirmation of all measures taken to correct the situation in case of non-compliance in matters pertaining to health and safety.
- .4 The Contractor shall give the safety officer or, where there is no safety officer, the person assigned to safety and health responsibilities, full authority to order cessation and resuming of work as and when deemed necessary or desirable in the interests of safety and health. This person should always act so that the safety and health of the public and construction site workers and environmental protection take precedence over cost and scheduling considerations.
- .5 The Departmental Representative or his agent may order to interrupt work if the Contractor does not provide the necessary corrective measures regarding the health and safety conditions found non-compliant. Without limiting the foregoing, he may also at any time order the work stopped if, in his perception, there is a danger or a risk to the health or safety of site personnel, the public or for environment.

### **1.15 VIOLENCE PREVENTION**

- .1 Health and safety management of Public Services and Procurement Canada construction sites includes the implementation of measures designed to protect the psychological health of all persons who access the construction site where the work is taking place.

Consequently, in addition to physical violence, verbal abuse, intimidation and harassment are not tolerated on the construction site. Any person who demonstrates such actions or behavior will receive a warning and/or could be definitely expelled from the construction site by the Departmental Representative.

## **1.16 ELECTRICAL WORK**

- .1 The Contractor shall ensure that all electrical work is performed by qualified staff in accordance with provincial regulations governing professional qualification and training.
- .2 The Contractor shall comply with the requirements set forth in CSA Z462 *Workplace electrical safety*.
- .3 All work on electrical equipment must be carried on OFF, unless it is not possible to disconnect this equipment completely.
- .4 The Contractor shall comply with all the requirements of the "Lockout" paragraph in this Section.
- .5 The Contractor shall give written notice to the Departmental Representative for any work that can not be performed OFF and obtain his authorization. He must demonstrate to the Departmental Representative that it is impossible to work off and provide all necessary information to apply for an energized work permit (work methods, evaluation of the level of arcing, perimeter protection, protective equipment, etc.) before starting work, except for the exceptions specified in CSA Z462 Workplace Electrical Safety.
- .6 The energized work permit shall contain at least the following elements:
  - a. description of the circuit, apparatus and location;
  - b. justification of the need for work in energized conditions;
  - c. description of safe work practices to adopt;
  - d. electric shock hazard analysis findings;
  - e. demarcation of protection against electric shocks;
  - f. conclusions of the arc flashes risk analysis;
  - g. description of the protection perimeter against arc flashes;
  - h. description of the required personal protective equipment;
  - i. description of how to restrict access to unqualified persons;
  - j. evidence that an information session was held;
  - k. signature approving work under energized conditions (by a person having the authority or by the Owner).
- .7 If for the operational needs of the occupants, the representative of the site requires the Contractor to perform work under energized conditions, the latter shall secure all the necessary information to fill an energized work permit (working method, electrical arc level, perimeter protection, protective equipment, etc.) and have it signed by the representative of the site designated by the Departmental Representative before the work begins.

## **1.17 EXCAVATION WORKS**

- .1 In addition to the requirements of the Code de sécurité pour les travaux de construction (Safety code for the construction industry), the Contractor who performs excavation or trenching must comply with the following requirements:
  - .1 Fill out the following form and submit it to the Departmental Representative before undertaking excavation work.
  - .2 Submit to the Departmental Representative, as appropriate, the following documents:
    - a. plans and specifications, signed and sealed by an engineer, of the shoring needed to be installed for the excavation work; or
    - b. engineer's advice specifying the angles of the walls of the trench or excavation.

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Cette directive de creusage est fournie à titre d'exemple par la Commission de la santé et de la sécurité du travail (CSST). On y trouve les principales indications que l'employeur devrait donner à la personne responsable des travaux sur le terrain et à l'opérateur de l'engin de terrassement.																																																																																																																	
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<b>Mesures de sécurité</b> Déposer les matériaux à une distance d'au moins 1,2 mètre (4 pi) du sommet des parois. Ne laisser aucun véhicule s'approcher à moins de 3 mètres (10 pi) du sommet des parois. <input type="checkbox"/> Respecter le plan de l'ingénieur concernant les travaux à proximité d'une construction existante. <input type="checkbox"/> Suivre le plan de localisation pour repérer les infrastructures souterraines. <input type="checkbox"/> Installer le matériel de signalisation prévu par le plan de circulation (barrières, repères visuels, etc.). <input type="checkbox"/> Affecter un ou des signaleurs au contrôle de la circulation. <input type="checkbox"/> Respecter la méthode prévue pour le travail à proximité des lignes électriques. <input type="checkbox"/> Mettre en place les dispositifs de protection des travailleurs, par exemple les glissières de sécurité en béton.																																																																																																																	
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## 1.18

### LIFTING LOADS WITH CRANE OR BOOM TRUCK

- .1 Unless specified otherwise, the Contractor must prepare a hoisting plan and submit it to the Departmental Representative for all lifting operations done with a crane or a boom truck at least 5 days before these lifting operations begin. The hoisting plan must contain at a minimum the information listed at the end of this Section.
- .2 A hoisting plan must be signed and sealed by an engineer for the following lifting operations:
  - a. Lifting of concrete panels;

- b. lifting mechanical/electrical equipment on a roof or the floor of a building;
  - c. lifting of loads encroaching on the public roads;
  - d. lifting very large dimension or heavy loads;
  - e. all other lifting operation, in accordance with the requirements of the Departmental Representative.
- .3 In addition to the above requirements, the Contractor must plan the hoisting operations in a way as to avoid that the loads pass over the occupied zones on the site. When there is no alternative, the hoisting plan must absolutely be signed and sealed by an engineer and must guarantee the safety of the occupants in that zone; the plan must also be approved by the Departmental Representative. The Departmental Representative can, if he deems necessary, require that the work be done at night or on weekends.
- .4 Upon beginning the work on the construction site, the Contractor must submit the list of the hoisting plans anticipated for the whole project to the Departmental Representative. That list shall be updated as needed if changes occur during the work.
- .5 In addition to the mechanical service inspection certificate, the annual inspection certificate and the crane logbook must be aboard all cranes and boom truck cabs.
- .6 The entire lifting area shall be marked off to prevent the entry of non-authorized persons.
- .7 The Contractor shall carefully inspect all of the slings and lifting accessories and make sure that those in poor condition are destroyed and scrapped.
- .8 Compressed-gas cylinders shall be lifted with a basket specially designed for this purpose.

#### **1.19 MINIMUM CONTENT OF HOISTING PLAN**

- .1 Sketch indicating at minimum the location of the crane, the surrounding facilities, the zone covered by the hoisting operations, the pedestrian pathways and vehicular routes, the safety perimeter, etc.
- .2 Weight of loads.
- .3 Dimensions of loads.
- .4 List of hoisting devices and weight of each.
- .5 Total weight lifted.
- .6 Maximum height of obstacles to clear.
- .7 Height of loads lifting relative to the surface of the roof (in the case of loads to be placed on roofs).
- .8 Use of guide cables.
- .9 Type of crane used.
- .10 Crane capacity.
- .11 Boom length.
- .12 Boom angle.
- .13 Crane's radius of action.
- .14 Deployment of stabilizers.
- .15 Percentage (%) usage of the crane's capacity.



- .16 Confirmed verification of lifting equipment.
- .17 Identification of the crane operator and the person responsible for the hoisting operations with date and signatures.

**Part 2            Product**

**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 SECTIONS**

- .1        Section 01 33 00 – Submittal Procedures.
- .2        Section 01 74 21 – Construction / Demolition Waste Management and Disposal.

**1.2            DEFINITIONS**

- .1        Environmental pollution and damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
- .2        Environmental protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

**1.3            ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submit required documents and samples in accordance with Section 01 33 00 – Submittal Procedures.
- .2        Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative. Environmental protection plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.
- .3        Address topics at level of detail commensurate with environmental issue and required construction tasks and they shall comply with the requirements herein set forth.
- .4        Include in environmental protection plan:
  - .1        Name of person responsible for ensuring adherence to environmental protection plan;
  - .2        Spill control plan, including procedures implemented, instructions given, and reports produced in event of unforeseen spill of regulated substance;
  - .3        Non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal, including clearing debris.
  - .4        An air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel beyond project site;
  - .5        Contaminant prevention plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with federal, provincial, and municipal laws and regulations for storage and handling of these materials.

**1.4 FIRES**

- .1 Fires and burning of rubbish on site are not permitted.

**1.5 WASTE DISPOSAL**

- .1 Except where expressly authorized by Departmental Representative, it is prohibited to bury waste and waste materials on site.
- .2 Do not remove waste materials or volatile materials such as mineral spirits and thinners oil or paint, by pouring them into streams, storm sewers or sanitary sewers.

**1.6 WORK ADJACENT TO WATERWAYS**

- .1 Construction equipment to be operated on land only, do not operate in the waterway.
- .2 Do not dump excavated material, waste material or debris in waterways.
- .3 Do not store fuel or any other contaminant less than 30 m from the shore Proceed to vehicle maintenance and refuelling of vehicles at less than 30m distance from the shore or the wharf wheel guards.
- .4 In the case where some equipment need to remain within 30 meters of the watercourse or wharf wheel guards, the Contractor shall submit to the Departmental Representative a protection plan for these operations.
- .5 Store fuel or any hazardous substance at more than 30m from the waterway or wharf wheel guards. If temporary oil facilities are used, the storage areas must be planned in accordance with the applicable regulations. Storage systems must be set on sealed surfaces. A response kit in case of oil spills shall be available on the site.

**1.7 MATERIAL TRANSPORTATION**

- .1 Haulage of materials on public roads to the work site is authorised Monday to Saturday unless otherwise indicated by authority having jurisdiction. Haulage prohibited on Sundays and statutory holidays.
- .2 Material transportation through the municipality may proceed between 7 h to 17 h for the day shift. Will not be authorised outside this period.
- .3 Ensure that trucks are in good operating condition. Any truck or other mode of transportation generating abnormal noise levels, according to Departmental Representative, shall cease the transportation of materials or be repaired or be modified and made acceptable.
- .4 Use adequate signage and cooperate with municipalities, the Departmental Representative and other concerned authorities to minimise transportation impact on the residents' normal lives in the vicinity of the work site.
- .5 Use tarpaulins to cover granular material during transportation.
- .6 Clean public roads frequently using a street sweeper.

**1.8 PROTECTION OF THE AQUATIC ENVIRONMENT IN THE WORK AREA**

- .1 Do not store debris from the demolition in the aquatic environment or on the shore.
- .2 As work progresses, perform complete cleaning of the aquatic environment in order to recover all rubbish generated during the work.
- .3 Heavy machinery shall not move into a water body outside the boundary of the work area.
- .4 All granular materials used in this project must be clean and free from contamination.
- .5 Advocate the use of equipment using a biodegradable HF vegetable oil type.

**1.9 POLLUTION CONTROL**

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant in accordance with local authorities' requirements.
- .3 The machinery used will be in good working order and maintenance will be performed before equipment is brought on site. Ensure that there are no fuel, oil or lubricant leaks. Advocate the use of equipment using an HF type biodegradable vegetable oil except excavators, in which this is mandatory.
- .4 Avoid cleaning the machinery near the water body.
- .5 Do not idle unnecessarily the engines of machinery and trucks.
- .6 Granular materials capable of being suspended in the air must be covered so that they can not be transported by the wind when they are stockpiled.
- .7 Cover the waste to avoid that the wind raises dust or debris. Remove dust on the temporary roads.
- .8 In case of accidental release of oil, fuel or other environmental incident, report the incident immediately to the Departmental Representative and the following authorities:
  - .1 Environment Canada, environmental emergency response centres. Tel.: 1-866-283-2333.
  - .2 Ministère du Développement Durable, Environnement et Lutte contre les changements climatiques (MDDELCC). Tel.: 1-866-694-5454.
  - .3 Canadian Coast Guard, marine pollution. Tel.: 800-363-4735.
  - .4 Work site supervisor.
- .9 The Contractor shall make every effort to dry up the source of the spill within the limits recommended by security. A barrier and / or oil absorbing mats should be deployed to contain the spill. Carpets or barriers will be stored in a container identified on the shore side and will be towed up to absorb or contain the spill. Carpets and barriers will be loaded inside sealed containers for treatment and / or appropriate disposal.
- .10 Soils contaminated by an accidental oil spill should be placed in a pile on a waterproof canvas and must be covered with a waterproof canvas. An audit of the environmental

quality of these materials must be made before they are removed from the site, and in accordance with MDDELCC regulations and guidelines. They will then be sent to an authorized disposal site.

- .11 Water contaminated by a spill will be contained in order to be characterized directly or taken over by a specialized company, and that, in accordance with MDDELCC regulations and guidelines.
- .12 All relevant site staff will be fully trained on procedures for emergency response to spills, methods and in the use of equipment and relevant materials.

#### **1.10 NOTIFICATION**

- .1 Departmental Representative will notify Contractor in writing of observed non-compliance with federal, provincial or municipal environmental laws or regulations, permits, and other elements of Contractor's environmental protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action as approved by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

#### **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                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, or law of place of work.
- .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      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, correct such work and pay cost of examination and correction. If such work is found in accordance with Contract Documents, Departmental Representative will pay cost of examination and replacement.

**1.2                INDEPENDENT INSPECTION AGENCIES**

- .1      Independent inspection/testing agencies will be engaged by Departmental Representative. Cost of such services will be borne by 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. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

**1.3                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.

**1.4                PROCEDURES**

- .1      Notify appropriate agency and 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.

**1.5 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 Departmental Representative as failing to conform to contract documents. Replace or re-execute in accordance with contract documents.
- .2 Make good other Contractors' work damaged by such removals or replacements promptly.
- .3 If in opinion of 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 Departmental Representative.

**1.6 REPORTS**

- .1 Not used.

**1.7 TESTS AND MIX DESIGNS**

- .1 Furnish test results and mix designs as required.
- .2 Cost of tests and mix designs beyond those called for in contract documents or beyond those required by law of place of work will be appraised by Departmental Representative and may be authorized as recoverable.

**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 SECTIONS**

- .1        Section 01 52 00 – Construction Facilities.
- .2        Section 01 56 00 – Temporary Barriers and Enclosures.
- .3        Section 01 74 21 – Construction/Demolition Waste Management.

**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                WATER SUPPLY**

- .1        Departmental Representative will not provide continuous supply of potable water for construction use.
- .2        Take necessary steps to ensure continuous supply, and assume all the costs.

**1.4                TEMPORARY POWER AND LIGHT**

- .1        Departmental Representative does not provide the temporary power supply for lighting and operation of power tools during construction. The Contractor shall make its own arrangements.
- .2        Provide temporary lighting places throughout the duration of the work and ensure network maintenance.
- .3        Provide temporary lighting of the premises for the duration of the work and ensure network maintenance.
- .4        Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Departmental Representative provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract.

**1.5                TELECOMMUNICATIONS**

- .1        The Contractor shall provide temporary telecommunications facilities, including telephone, fax and Internet services, including lines for its own use and for use by the Departmental Representative and must ensure the connection of these facilities for major networks and bear the costs of these services.
- .2        Telecommunication services are required at the scale.



**1.6 FIRE PROTECTION**

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

**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 SECTIONS**

- .1        Section 01 51 00 – Temporary Utilities.
- .2        Section 01 56 00 – Access and temporary protection works.
- .3        Section 01 74 21 – Management and disposal construction waste/démolition.

**1.2                INSTALLATION AND REMOVAL OF EQUIPMENT**

- .1        Prepare a plan showing the proposed location and dimensions of the area to be fenced and used by the Contractor, the number of required construction trailers, routes, of access to the fenced area and details of installation of the fence.
- .2        Indicate areas to be covered with gravel to prevent sludge deposits.
- .3        Provide any additional area or staging area.
- .4        Provide, implement or develop the site facilities necessary for the performance of work in the shortest possible time.
- .5        Remove the equipment and remove the site when no longer needed.

**1.3                HOISTING**

- .1        Hoisting : according to the standard or norm CAN/CSA-S269.2.

**1.4                LIFTING EQUIPMENT**

- .1        Supply and install and cranes needed to move, materials/materials and equipment, and maintain and labor.
- .2        Labor and cranes must be entrusted to skilled workers.

**1.5                SITE STORAGE/LOADING**

- .1        Confine work and operations of employees by the specification. Do not unreasonably encumber premises with products.

**1.6                CONSTRUCTION PARKING**

- .1        Will be allowed to park on site, provided it does not interfere with the execution of the work.
- .2        Develop suitable access roads to the site and maintain.

**1.7                OFFICES**

- .1        Not used.

**1.8 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.

**1.9 SANITARY FACILITIES**

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

**1.10 PROTECTION AND MAINTENANCE OF TRAFFIC**

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .3 Provide measures for protection of traffic, including erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor : responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads necessary.
- .8 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .9 Lighting : to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .10 Provide for the removal of snow during the construction period.
- .11 Remove, upon completion of work, haul roads designated by Departmental Representative.

**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.

**Part 3 Execution**

**3.1 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.
- .3        Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

**1.2                INSTALLATION AND REMOVAL**

- .1        Provide, install or develop work site facilities required to perform the work in the shortest possible time frame.
- .2        Dismantle and remove from site any equipment no longer needed.

**1.3                PALISSADES**

- .1        Not used.

**1.4                GUARD-RAILS AND FENCES**

- .1        Provide guardrails and rigid and safe steel barriers and install around deep excavations or others.
- .2        Provide and install these elements as required by the competent authorities.

**1.5                ACCESS**

- .1        The Contractor shall maintain access to the harbor during the activity period extending from early September to 15 October 2016.

**1.6                FIRE ROUTES**

- .1        Ensure adequate emergency access to work site.

**1.7                PROTECTION OF PRIVATE AND PUBLIC PROPERTY**

- .1        Protect surrounding private and public property from damage during performance of Work.
- .2        The Contractor is responsible for any damage incurred to private and public property during performance of Work.

**1.8                PROTECTION OF FINISHED SURFACES OF WORK**

- .1        Throughout the construction period, protect the equipment and surfaces completely or partially finished of the work.
- .2        Provide the necessary screens, tarpaulins and barriers.
- .3        Be responsible for damage to structures due to a lack of protection or inadequate protection.

**1.9 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse/recycling in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

**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 SECTIONS**

- .1        Section 01 11 01 – Work-related general information.

**1.2               REFERENCES**

- .1        Comply with the standards indicated, as specified.
- .2        Where there is doubt as to the compliance of certain products or systems with relevant standards, Departmental Representative reserves the right to verify by testing.
- .3        If the products or systems comply with the contract documents, the costs of these tests shall be borne by the Departmental Representative.

**1.3               QUALITY**

- .1        Products, materials, equipment, devices and components used to perform the work must be new, in perfect condition and of the best quality for the purposes for which they are intended. If necessary, provide evidence establishing the nature, origin and quality of products supplied.
- .2        The purchasing policy aims to acquire, at a minimum cost, articles containing the greatest percentage of recycled and recovered material, while maintaining satisfactory levels of competitiveness. Make reasonable efforts to use recycled materials for the execution of the works.
- .3        Products found defective before the end of the work will not be accepted, whatever the findings of previous inspections. Inspections are not intended to relieve the Contractor of his responsibilities, but simply to reduce the risk of omission or error. The Contractor shall ensure the removal and replacement of defective products at his expense, and will be responsible for delays and resulting costs.
- .4        In the event of a dispute as to the quality or suitability of the products, only the Departmental Representative may decide the matter based on the requirements of the contract documents.
- .5        Unless otherwise stated in the specifications, promote consistency by ensuring that the materials or elements of the same type from the same manufacturer are provided.
- .6        Labels, trademarks and permanent nameplates placed prominently on the products used are not acceptable unless they give an operating instruction or if they are placed on the equipment installed in mechanical and electrical installations.

#### **1.4 AVAILABILITY**

- .1 Immediately after signing the contract, acknowledge the requirements for the delivery of products and make provision for any delay. If delays in the delivery of products are predictable, notify Departmental Representative so that measures can be taken to secure substitutes or to make the necessary corrections sufficiently in advance to avoid delays in the work.
- .2 If the Departmental Representative has not been notified of foreseeable delivery delays at the start of work, and it seems likely that the performance of work would be delayed, the Departmental Representative reserves the right to substitute products provided comparable products can be delivered quickly, without the price of the contract being increased.

#### **1.5 STORAGE, HANDLING AND PROTECTION**

- .1 Handle and store products and avoid damaging, altering or dirtying them, and follow the manufacturer's instructions, if any.
- .2 Store in original packaging bundled products or batches; leave intact packaging, label and manufacturer seal. Do not unpack or untie the products before the time of incorporation to work or structure.
- .3 Products likely to be damaged by weather conditions must be kept in weatherproof enclosures.
- .4 Place timber and sheet materials and signs on flat rigid substrates, so they do not rest directly on the floor or ground. Give a slight slope to facilitate the flow of condensate.
- .5 Replace damaged products at no additional charge, to the satisfaction of the Departmental Representative.
- .6 Touch up to the satisfaction of the Departmental Representative, the factory-finished surfaces that have been damaged. Use products identical to those used for the original finish. It is prohibited to apply a finish or retouching on nameplates.

#### **1.6 TRANSPORTATION**

- .1 Pay product transportation costs required for the execution of the work.

#### **1.7 MANUFACTURER'S INSTRUCTIONS**

- .1 Unless otherwise required in the specifications, install or implement the products according to the manufacturer's instructions. Do not rely on the information on the labels and containers provided with the products. Obtain directly from the manufacturer a copy of his written instructions.
- .2 Notify Departmental Representative in writing of any discrepancies between the requirements of the specifications and the manufacturer's instructions, so that he can take appropriate action or measures.



- .3 If the manufacturer's instructions have not been followed, the Departmental Representative may require, without increase in the contract price, the removal and installation of the products that have been set up or installed incorrectly.

## **1.8 WORKMANSHIP**

- .1 The implementation must be of the highest possible quality, and the work must be performed by skilled workers, skilled in their respective disciplines. Notify Departmental Representative if the work to be performed are such that they will likely not yield the desired results.
- .2 Do not hire unqualified people or not having the necessary skills to carry out the work entrusted to them. The Departmental Representative reserves the right to prohibit access to the site to any person deemed incompetent or negligent.
- .3 The Departmental Representative can alone settle disputes concerning the quality of works and skills of the workforce, and his decision is final.

## **1.9 COORDINATION**

- .1 Ensure that workers cooperate among themselves to the realization of the work. Exercise close and constant supervision of their work.
- .2 The Contractor is responsible for ensuring the coordination of work and the implementation of accessories and details.

## **1.10 CONCEALMENT**

- .1 Unless otherwise indicated, conceal pipes, ducts and cables in floors, walls and ceilings in finished rooms and areas.
- .2 Prior to concealing items, notify the Departmental Representative of any abnormal situation. Make the installation according to the Departmental Representative guidelines.

## **1.11 REMEDIAL WORK**

- .1 Perform remedial work required to repair or replace defective elements of the work or structure found defective or unacceptable. Coordinate the work to be performed on the affected adjacent work as required.
- .2 Rehabilitation work must be done by specialists familiar with the materials and equipment used; the work must be done so that no part of the work is damaged or likely to be.

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not used.

CAP-DES-ROSIERS  
Construction of pontoons and repair of the fishermen's wharf  
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Section 01 61 00  
COMMON PRODUCT  
REQUIREMENTS  
Page 4

**Part 3            Execution**

**3.1                NOT USED**

.1            Not used.

**END OF SECTION**

**Part 1            General**

**1.1                CONNEXT SECTIONS**

- .1        Section 01 74 21 – Construction/demolition waste management.

**1.2                REFERENCES**

- .1        Not used.

**1.3                PROJECT CLEANLINESS**

- .1        Maintain Work in tidy condition, free from accumulation of waste products and debris.
- .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.
- .3        Clear or evacuate the snow off the site. Clear snow and ice from access to harbour, bank/pile snow in designated areas only.
- .4        Obtain valid certificate for disposition of construction waste and debris.
- .5        Use separated and identified containers for recycling refer section 01 74 21 – Construction/demolition waste management.
- .6        Dispose of waste materials and debris off site.
- .7        Store volatile waste in covered metal containers, and remove from premises at end of each working day.

**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 materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .5        Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

**1.5                WASTE MANAGEMENT AND DISPOSAL**

- .1        Separate waste materials for recycling and reuse in accordance with section 01 74 21 – Construction/demolition waste management.

**Part 2            Product**

**2.1                NOT USED**

- .1        Not used.

CAP-DES-ROSIERS

Construction of pontoons and repair of the fishermen's wharf

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**Part 3            Execution**

**3.1                NOT USED**

.1            Not used.

Section 01 74 11

CLEANING

Page 2

**END OF SECTION**

**Part 1 General****1.1 WASTE MANAGEMENT GOALS**

- .1 The objective of PSPC is to divert a minimum 75 percent of total Project Waste from landfill sites. Prior to project completion provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.
- .2 Exercise maximum control of solid construction waste.
- .3 Protecting the environment and preventing pollution and environmental impacts.

**1.2 RELATED SECTIONS**

- .1 Section 01 35 43 – Environmental procedures.
- .2 Section 01 56 00 – Temporary Barriers and Enclosures.
- .3 Section 01 74 11 – Cleaning.

**1.3 DEFINITIONS**

- .1 Class III non-hazardous waste: construction, renovation and demolition wastes.
- .2 Cost-revenue analysis (CRAW): Based on information from WRW, and intended as financial tracking tool for determining economic status of waste management practices.
- .3 Demolition Waste Audit (DWA): relates to actual waste generated from project.
- .4 Discharge - inert waste - exclusively asphalt and concrete.
- .5 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .6 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.
- .7 Recycle: process by which waste and used materials are collected or transformed for purpose of being reintroduced in a consumer cycle in the form of new products.
- .8 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials or items for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .9 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
  - .1 Salvaging reusable products and materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.

- .2 Returning reusable items (products or materials) to vendors including pallets and unused products.
- .10 Salvage: removal of structural and non-structural materials or components/elements from industrial, commercial and institutional deconstruction/disassembly projects for purpose of reuse or recycling.
- .11 Separate Condition: refers to waste when sorted into individual types.
- .12 Source Separation: acts of keeping different types of waste materials and products separate beginning from first time they became waste.

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

- .1 Store where indicated by the Departmental Representative waste materials that are recovered for re-use or recycling.
- .2 Unless otherwise indicated waste materials that must be disposed of become the property of the Contractor.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Haul and deliver non-salvageable items to approved local facility.
- .5 Remaining framing, not demolished, must be protected against shifting and damage.
- .6 Support affected structures. Should safety of building be endangered, cease operations and immediately notify Departmental Representative.
- .7 Protect surface drainage works to avoid damage or clogging. Protect mechanical and electrical installations.
- .8 Separate and store materials produced during dismantling of structures in designated areas.
- .9 Prevent contamination of waste materials to be salvaged and recycled and handle in accordance with requirements for acceptance by designated facilities.
  - .1 On-site source separation is recommended.
  - .2 Remove co-mingled materials to off-site processing facility for separation.
  - .3 Provide a waybill of sorted waste materials.

#### **1.5 WASTE DISPOSAL**

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of any waste into storm, or sanitary sewers.
- .3 Remove materials from deconstruction as Work progresses.

#### **1.6 USE OF SITE AND FACILITIES**

- .1 Perform work with least possible interference or disturbance to normal use of premises.

- .2 Maintain existing security measures established for the existing installation. Implement interim safety measures approved by Departmental Representative.

## 1.7 SCHEDULING

- .1 Coordinate waste management with other activities at site to ensure timely and orderly progress of Work.

## Part 2 Products

### 2.1 NOT USED

- .1 Not used.

## Part 3 Execution

### 3.1 GENERAL

- .1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

### 3.2 CLEANING

- .1 After work is completed, remove the tools and then remove the waste. Leave the place clean and tidy.
- .2 Clean-up work area as work progresses.

### 3.3 KEY ENVIRONMENTAL AUTHORITIES IN FEDERAL AND PROVINCIAL GOVERNMENTS

- .1 Key government authorities in environment

Province	Address	General information	Fax
<b>Québec</b>	<b>Centre d'informations</b> Édifice Marie-Guyart, 29 <sup>e</sup> étage 675, boulevard René-Lévesque Est Québec, Québec G1R 5V7	418 521-3830 1-800 561-1616	418 646-5974
<b>Sainte-Anne-des-Monts</b>	124, 1 <sup>re</sup> Avenue Ouest Sainte-Anne-des-Monts, Québec G4V 1C5	418 763-3301	418 763-7810
<b>Rimouski</b>	212, avenue Belzile Rimouski, Québec G5L 3C3	418 727-3511	418 727-3849

**END OF SECTION**

**Part 1 General****1.1 RELATED SECTIONS**

- .1 Section 01 11 01 – Work Related General Information.
- .2 Section 01 35 43 – Environmental Procedures.
- .3 Section 01 74 21 – Construction/Demolition Waste Management.
- .4 Section 02 41 16 – Structure Demolition.

**Part 2 Products****2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution****3.1 REMOVAL OF SOLID WASTE AND DRY MATERIALS**

- .1 Do not bury or burn solid waste and dry materials on site.
- .2 The contractor shall engage, at his own expenses, an environmental consulting expert, to elaborate and to implement a management program for cleaning waste, demolition and excavation. The program is subject to the acceptance of the provincial environmental authorities (MDDELCC).
- .3 Do not dispose of solid waste and dry materials in waterways, unless authorized in writing by the Departmental Representative.
- .4 Dry materials from demolition that are not to be reused shall be disposed off the site.
- .5 Dry materials from demolition, according to the Regulation Respecting Solid Waste RSQ 1981, c. Q-2, r. 14 of the Environment Quality Act are defined in the Regulation (section 1 (n)) as: “non-fermentable, shredded residues free of hazardous waste, cut wood, debris and rubble; fragments of concrete, masonry and asphalt”.
- .6 Dry materials from demolition that are not reusable shall be disposed of at sites authorized by the Ministry of Sustainable Development, Environment and Parks of Quebec (MSDEP). On request, the MSDEP can provide information on the sites in operation.
- .7 The Contractor shall submit to the Departmental Representative a copy of the authorizations and permits from the owners or managers of dry material disposal sites before the latter authorizes the Contractor to remove dry materials from the work site.
- .8 The Contractor shall demonstrate that he knows the environmental quality of the depot site chosen. If the Contractor want to depose materials on a none evaluate (or not certified



regulated) site he has to proceed, at his own cost, of the soil characterisation and obtain the authorisation of Departmental Representative before using it.

If the Contractor wants to dispose dry materials in a site other than L.E.T. authorized by MDDELCC, he has to obtain the authorisation from MDDELCC unless he wants to use dry materials (soils examples, crushed concrete residues) for filling; he has to produce site authorisations from the municipality and in some case from MDDELCC. The Contractor shall produce authorisations to respect the provincials/municipals regulations.

Note: The soils characterisation consist to sampling and analyse soils samples to determine the value of mineral (lead, brass, copper, zinc, cadmium, chrome, arsenic, nickel and mercury), of hydrocarbon of petroleum and of polycyclic aromatic hydrocarbons (PAH's). (Ref.: Guide for Site Characterization of MDDELCC and the Policy of protection of soils and rehabilitation of contaminate land (MDDELCC).

- .9 The quality of grounds, near the site planned by the works of the wall in blocks of prefabricated concrete and the network of drainage, was estimated in June, 2016. This one allowed to identify a contamination in hydrocarbons tankers C10-C50 in the east sector of fishermen's wharf (approximately 150 t.m. of grounds in the range B-C of the criteria of the MDDELCC), on a depth of at least 1 m. Concentrations fluoranthene and pyrene were also detected in the central sector of the wharf on a depth of at least 0,4 m (approximately 60 t.m. of grounds in the range A-B of the criteria of the MDDELCC).

In appendix the table 4 - Map 1 Localization of the soundings and the analytical results.

- .10 The environmental expert appointed by the Contractor shall consider this information in preparing his management plan for disposal of materials.
- .11 A laboratory authorized by the Contractor and approved by the Departmental Representative take samples in the soil piles deposited and will notify the Departmental.
- .12 Soils will be managed under their contamination degree, according to the Grid management of contaminated soil excavated Interim MDDEP:
- .1 Contaminated soil, smaller than "A";
  - .2 Contaminated soil, class "A-B";
  - .3 Contaminated soil, class "B-C"**
- .13 According to the results of parameters analyzed, all soils will be loaded and transported out of the depot site by the Contractor to authorized sites by MDDEP.
- .14 Contractor shall provide to Departmental Representative sites certificates demonstrating that these sites are authorized by the MDDEP. The excavation of "AB" **and "BC"** classified soils shall not start until the Departmental Representative have in his possession all documents showing MDDEP's authorizations.
- .15 Contractor shall provide to Departmental Representative a copy of results analysis, weigh tickets where necessary, permits and licenses obtained by relevant authorities.
- .16 The contractor must characterise the bottom and walls of excavations to determine the soil in place quality. He must provide at least 4 composite samples for bottom and 4 other composite samples for walls. The samples will be analysed for parameters as follows: base metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn), PAH and C<sub>10</sub>-C<sub>50</sub> hydrocarbons. The results must be

transmitted to Departmental Representative as soon as possible to determine supplementary excavation works if required. If supplementary excavation works are required, the contractor must excavate and make other samples in bottom and walls.

### 3.2 REUSABLE MATERIALS

- .1 Materials from demolition that are reusable are wood in good condition, rock, excavation materials, steel, etc.
- .2 Only the Contractor shall determine which materials are reusable, it is his responsibility.
- .3 Sort at source reusable materials from the structure demolition and store them on the site are not subject to federal or provincial regulations effective.
- .4 Dry materials from demolition that are reusable may be removed from the site as long as the Contractor:

- .1 submits a written promise that the site user and owner, if the user is not the owner, where the materials deemed reusable by the Contractor will be stored shall indemnify and save Her Majesty harmless from and against all claims, demands, losses, costs, damages, actions, suits or proceeding by whomever made, brought or prosecuted and in any manner based upon, arising out of, related to, occasioned by or attributable to the storage of these materials at the site by the Contractor, his employees, agents or sub-contractors, or the subsequent use of these materials;
- .2 submits a document duly signed by the site user and owner, if the user is not the owner, authorizing the Contractor to store demolition material deemed reusable by the Contractor at the site;
- .3 submits a document duly signed by the site user and owner, if the user is not the owner, indemnifying and saving Canada harmless from any claims resulting from storage at the site and subsequent use of demolition materials deemed reusable by the Contractor.

This document shall:

- .1 be completed in duplicate if the site user is not the owner (i.e. one copy for the site user and one copy for the site owner);
- .2 indicate the cadastre number of the lots of the storage site for material deemed reusable and the name of the owner of these lots;
- .3 contain the following paragraph:

“ \_\_\_\_\_ (enter the name of the company using the site or the site owner) shall indemnify and save Canada harmless from and against all claims, demands, losses, costs, damages, actions, suits or proceedings by whomever made, brought or prosecuted and in any matter base upon, arising out of, related to, occasioned by or attributable to the storage by \_\_\_\_\_ (enter the Contractor's name), his employees, agents or sub-contractors, on the lot(s) bearing the number(s) \_\_\_\_\_ in the cadastre of \_\_\_\_\_, of demolition materials from \_\_\_\_\_, (enter the structure to be demolished) deemed reusable by the \_\_\_\_\_ (enter the Contractor's name), or to the subsequent use of these materials”;
- .4 provides a document duly issued by the RCM or the municipality where the site is located authorizing the site user and owner, if the user is not the

- owner, to use the site to store reusable material from the demolition site;  
and
- .5 obtain written approval from the Departmental Representative in advance.

**END OF SECTION**

**Part 1 General**

**1.1 SECTION INCLUDES**

- .1 Section 024116 – Short Form. Structure Demolition, is aimed at the methods and procedures for the total or partial demolition of features or structures, including basements and foundation walls.

**1.2 RELATED SECTIONS**

- .1 Section 01 35 43 – Environmental procedures.

**1.3 REFERENCES**

- .1 Canadian Standards Association (CSA)/CSA International.
  - .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.

**1.4 ACTION/INFORMATIONAL SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prior to demolition where the authorities so request, submit to the approval of the Departmental Representative the shoring and bracing drawings. These drawings must be prepared by a qualified engineer, licensed to practice in Canada, in the province of Quebec, and must illustrate the proposed working method.
- .3 Prior to beginning of work on site submit detailed Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal, where the following information is provided:
  - .1 Expected nature and quantities of materials to recover, re-use, recycle and to be buried at the landfill.
  - .2 Schedule of selective demolition.
  - .3 Number and location of collection bins.
  - .4 Expected frequency of waste collection.
  - .5 Name and address of trucking companies, waste management centers or organizations accepting waste.

**1.5 SHIPPING, STORAGE AND HANDLING**

- .1 Waste management and disposal
  - .1 Separate waste for recycling in accordance with Section 01 74 21 - Construction / Demolition Waste Management and Disposal.

**1.6 EXISTING CONDITIONS**

- .1 If a material resembling asbestos applied by spraying or with a trowel or any other products designated and classified as hazardous materials are discovered during the execution of the

work, stop work, take proper precautions and inform Departmental Representative immediately.

- .1 Do not resume work until Departmental Representative written instructions are issued.
- .2 Notify Departmental Representative prior to limiting access to the work or discontinuing the services.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Leave equipment, tools and machinery running only while in use, except where extreme temperatures prohibit shutting down.
- .2 Demonstrate that tools and machinery are being used in manner which allows for salvage of materials in best condition possible.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Do work in accordance with Section 01 35 29.06 – Health and safety requirements.
- .2 Protection
  - .1 Prevent movement, settlement, or damage to adjacent structures, utilities, and features to remain in place. Provide bracing and shoring as required.
  - .2 Keep noise, dust, and inconvenience to occupants and environment to minimum.
  - .3 Provide temporary dust screens, covers, railings, supports and other protection as required.
- .3 Unplug and re-route service lines of electrical, telephone and telecommunications networks. Post cautionary markings on pipes and electrical equipment which must remain energized during demolition work to feed other systems.
- .4 Identify and protect utilities pipes. Do not touch the utility conduits which are in service or energized and that should not be moved.

### **3.2 DEMOLITION, REUSE AND DISPOSAL**

- .1 Dismantle the parts of the existing structure whose removal is necessary for the construction of the new structure. Sort the materials and group them into separate piles according to whether they will be reused or recycled.
- .2 Refer to requirements and demolition drawings to identify which materials are to be recovered for re-use.
- .3 Remove items to be recycled / re-used and stored according to the Departmental Representative's instructions and replace them according to the requirements of the relevant section of the specifications.

- .4 Unless otherwise indicated, remove the materials to the appropriate recycling facilities or recycling / reuse companies and comply with the requirements of the authorities.

### **3.3 STOCKPILING**

- .1 Identify the different stockpiles and indicate the type of material and quantity.
- .2 Take appropriate safety measures and allocate adequate resources to prevent theft, vandalism and deterioration of materials.
- .3 Stockpile the materials where they will lend themselves to re-use in a new construction. Eliminate double handling as much as possible.
- .4 Stockpile the materials identified for environmentally sound disposal at a place which, on one hand, will facilitate removal from the site and review by potential users interested in their re-use, and on the other hand that will not impede their dismantling, processing or trucking.

### **3.4 REMOVAL**

- .1 Transport materials for an environmentally friendly disposal to waste management centers approved in accordance with relevant regulations. Do not convey the materials elsewhere than to waste management centers without the Departmental Representative's written authorization.
- .2 Dispose of other materials in accordance with relevant regulations, in facilities approved by Departmental Representative. Do not convey the materials elsewhere than to waste management centers without the Departmental Representative's written authorization.

### **3.5 NATURE OF MATERIALS**

- .1 Demolition materials mainly include, but are not limited to: stone of different sizes, gravel, pieces of wood (lumber), steel bolts and pins, steel plates, wire rope, masonry, precast concrete element, etc.

### **3.6 CLEANING AND REMEDIAL WORK**

- .1 Keep site clean and organized throughout demolition procedure.
- .2 Upon completion of project, reinstate areas (surface areas, parking areas, pedestrian alleys, lampposts) affected by Work to condition which existed prior to beginning of Work.

**END OF SECTION**

## **Part 1            General**

### **1.1                REFERENCES**

- .1    American Concrete Institute (ACI)
  - .1        SP-66-04, ACI Detailing Manual 2004.
- .2    ASTM International
  - .1        ASTM A82/A82M, Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
- .3    CSA International
  - .1        CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
  - .2        CAN/CSA-A23.3, Design of Concrete Structures.
  - .3        CSA W186-, Welding of Reinforcing Bars in Reinforced Concrete Construction.
- .4    Reinforcing Steel Institute of Canada (RSIC)
  - .1        IAAC-2004, Reinforcing Steel Manual of Standard Practice.

### **1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Prepare reinforcement drawings in accordance with RSIC Manual of Standard Practice.
- .2    Shop drawings
  - .1        Submit drawings stamped and signed by professional engineer registered or licensed in Québec, Canada.
    - .1            Indicate placing of reinforcement and:
      - .1                Bar bending details.
      - .2                List of reinforcement.
      - .3                Quantities of reinforcement.
      - .4                Sizes, spacings, locations of reinforcement and mechanical splices if approved by Departmental Representative, with identifying code marks to permit correct placement without reference to structural drawings.
      - .5                Indicate sizes, spacings and locations of chairs, spacers and hangers.
  - .2            Detail lap lengths and bar development lengths to CAN/CSA-A23.3, unless otherwise indicated.

### **1.3                SHIPPING, STORAGE AND HANDLING**

- .1    Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2    Delivery and acceptance requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

**Part 2            Product**

**2.1                MATERIALS**

- .1        Substitute different size bars only if permitted in writing by Departmental Representative.
- .2        Reinforcing steel: billet steel, grade 350, deformed bars to CSA-G30.18, unless indicated otherwise.
- .3        Cold-drawn annealed steel wire ties: to ASTM A82/A82M.
- .4        Welded steel wire fabric: to ASTM A185/A185M.
  - .1        Provide in flat sheets only.
- .5        High adherence wire reinforcing mesh: wire mesh welded steel, high adherence, to ASTM A82/A82M.
  - .1        Provide mesh in flat sheets only.
- .6        Chairs, bolsters, bar supports, spacers: to CSA-A23.1/A23.2.

**2.2                FABRICATION**

- .1        Fabricate reinforcing steel in accordance with CSA-A23.1/A23.2 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.
- .2        Obtain Departmental Representative's written approval for locations of reinforcement splices other than those shown on placing drawings.
- .3        Upon approval of Departmental Representative, weld reinforcement in accordance with CSA W186.
- .4        Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists.

**Part 3            Execution**

**3.1                FIELD BENDING**

- .1        Do not field bend or field weld reinforcement except where indicated or authorized by Departmental Representative.
- .2        When field bending is authorized, bend without heat, applying slow and steady pressure.
- .3        Replace bars, which develop cracks or splits.

**3.2                PLACING REINFORCEMENT**

- .1        Place reinforcing steel as indicated on placing drawings in accordance with CSA-A23.1/A23.2.
- .2        Prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.
- .3        Ensure cover to reinforcement is maintained during concrete pour.



**3.3 FIELD TOUCH-UP**

- .1 Touch up damaged and cut ends of epoxy coated or galvanized reinforcing steel with compatible finish to provide continuous coating.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A185/A185M-07, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
  - .2 ASTM C260-06, Standard Specification for Air-Entraining Admixtures for Concrete
  - .3 ASTM C490/C490M-08, Standard Practice for Use of Apparatus for the Determination of Length Change of Hardened Cement Paste, Mortar, and Concrete.
  - .4 ASTM C494/C494M-08a, Standard Specification for Chemical Admixtures for Concrete.
  - .5 ASTM D1751-04(2008) Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non extruding and Resilient Bituminous Types)
- .2 Canadian General Standards Board (CGSB) (ONGC)
  - .1 CAN/CGSB-19.24-M90, Multicomponent, Chemical-Curing Sealing Compound.
- .3 Canadian Standards Association (CSA)/CSA International
  - .1 CAN/CSA-A3000-F08, Cementitious Materials Compendium (Includes: A3001, A3002, A3003, A3004 et A3005).
    - .1 CAN/CSA-A5, Portland Cements.
    - .2 CAN/CSA-A23.5, Supplementary Cementing Materials.
  - .2 CAN/CSA-A23.1-09/A23.2-09, Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete, Includes Updates through No. 3 August 2006.
  - .3 CAN3-A23.3-F04, Design of Concrete Structures.
  - .4 CAN/CSA-A23.4/A251-F09, Precast Concrete - Materials and Construction/Qualification Code for Architectural and Structural Precast Concrete Products.
  - .5 CAN/CSA-G30.18-F09, Billet-Steel Bars for Concrete Reinforcement.

**1.2                ACTION / INFORMATIONAL SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Provide testing and inspection results and reports for review by Departmental Representative and do not proceed without written approval when deviations from mix design or parameters are found.

### **1.3 SHIPPING, STORAGE AND HANDLING**

- .1 Concrete hauling time: delivery to site of Work and discharged within 120 minutes maximum after batching.
  - .1 Check any deviations exceeding maximum allowable time of 120 minutes for concrete to be delivered to site of work and discharged after batching, to A23.1/A23.2.
  - .2 Provide discrepancies for review by Departmental Representative.

### **1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Convey unused concrete and concrete constituents to a local recycling facility approved by the Departmental Representative.
- .2 Convey unused admixtures to a hazardous waste collection site authorised by the Departmental Representative.
- .3 Do not dispose of unused admixtures and additive materials into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

## **Part 2 Products**

### **2.1 REINFORCEMENT**

- .1 Rebars, tie wire, chairs, spacers, bar supports and bolsters: to Section 03 20 00 – Concrete reinforcing.

### **2.2 MATERIALS**

- .1 Cement, aggregate, water and admixtures: to CAN/CSA-A23.1 and CSA-A23.4.
- .2 Hardware and miscellaneous accessories: to CAN/CSA-A23.1.
- .3 Air entrainment agents: to ASTM C 260-06.
- .4 Chemical admixtures: to ASTM C 490/C 490-M08, as recommended by the manufacturer.
- .5 Supplementary cementing material: to CAN/CSA-A3001.
- .6 Cementitious hydraulic slag: to CAN/CSA-A363.
- .7 Premolded backup materials:
  - .1 Bituminous impregnated fiber board: to ASTM D 1751.
- .8 Shear studs : to CSA G40.21.
- .9 Joint sealant: Sikaflex 1a by Sika or approved equivalent.

## **2.3 MIX DESIGNS**

- .1 The average density concrete shall be prepared to the requirements of CAN/CSA-A23.1 CAN/CSA-A23.1/A23.2 (normal type), to obtain a mix displaying the following features:
  - .1 Type I concrete: concrete for pouring slabs
    - .1 Portland cement, type GU-SF.
    - .2 Minimum compressive strength at 28 days: 35 MPa.
    - .3 Water / cement ratio: lower than 0,40.
    - .4 Exposure class: C-1.
    - .5 Nominal size of coarse aggregate: 20 mm.
    - .6 Slump at the time and point of discharge: 50 to 100 mm.
    - .7 Air content: 4 % to 7 %.
    - .8 Chemical admixtures: water reducers to increase resistance, set retarders, set accelerators, strength enhancers, air entrainers, superplasticizers, as recommended by the manufacturer.
  - .2 Type II concrete: concrete placed under the old slab
    - .1 Use Portland cement, GU-SF.
    - .2 Minimum compressive strength: 35 MPa at 28 days.
    - .3 Exposure class: C-1.
    - .4 Maximum water / cement ratio, weight: 0,40.
    - .5 Nominal size of coarse aggregate: as required.
    - .6 Slump at the time and point of discharge: 150 to 200 mm.

Admixtures: type approved by the Departmental Representative, used to correct a defect of the mixture, or to facilitate the placement.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Clean old concrete slab using a sweeper, or any other method approved by the Departmental Representative. Ascertain to remove all grease, oil and other debris.
- .2 After cleaning and drying the old concrete slab, make a surface preparation of concrete yielding a type CSP-6 concrete profile, according to Standard No. 03732 -Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, by ICRI (International Concrete Repair Institute). This type of finish corresponds to a rough finish in which the aggregates are exposed. Provide a 3500 lb / ft<sup>2</sup> minimum capacity trigger sprayer to expose the aggregate.
- .3 Sprinkle the concrete slab, so that the surface is at the SSS state (saturated surface dry). The surface must be free of standing water.
- .4 Apply a bonding agent, type SikaTop Armatex 110 EpoCem or Acry-lok by W.R. Meadows on the concrete with an application rate of 1.2 kg / m<sup>2</sup>. The new slab shall be cast within 8 hours following the application of the bonding agent.

### **3.2 CONCRETING**

- .1 Observe the following instructions for concrete work.
  - .1 Do not make cold joints.
  - .2 Ensure that the handling and unloading of concrete are made to minimize interventions during its implementation and to cause no damage to the work or existing structures.

### **3.3 PLACEMENT**

- .1 Use type I concrete for the establishment of the slab of paragraphs 3.1 and 3.2.
- .2 Use type I concrete for the new slab on ground and tile course under the anchor block of the footbridge.
- .3 Use Type II concrete for concrete fill under the old concrete slab.
- .4 Execute cast in place concrete structures in accordance with CAN/CSA-A23.1.
- .5 Build the slabs with reinforcement as indicated and shown on the plan.
- .6 No fresh concrete shall be poured in the water.
- .7 Surface finishing:
  - .1 Finish concrete surfaces to CAN/CSA-A23.1.
  - .2 The Contractor shall notify the Departmental Representative at least 48 hours prior to the placement of concrete. No concrete pour will be permitted if the 48-hour notification is not given.
- .8 Back up material:
  - .1 Unless otherwise authorized by the Departmental Representative, provide joint backing in one piece, thickness and width as required for each joint. If you need more room for a seal, secure the ends of pieces that abut and firmly hold the latter in the required shape by stapling or using other effective fastening means.
  - .2 Locate and achieve the expansion joints as indicated. Install joint backing.
  - .3 Use 12 mm thick joint backing. Unless otherwise indicated, the backer material should be installed from the bottom to finish at 12 mm above the level of the finished concrete surface. Apply sealant to fill the cavity.
- .9 Pumpcreting:
  - .1 Provide a concrete pump discharge pipe of sufficient diameter to allow a good flow of concrete. The tube diameter must be at least eight times the maximum size of coarse aggregate.
  - .2 Connect the upper opening of the eduction tube and provide a device for moving the tube up and down.
  - .3 Place a plug or a valve at the base of the tube in order to fill it with concrete before its immersion beneath the concrete slab.

- .4 Provide more openings in the old concrete slab to insert the discharge pipe and to ensure the proper dissemination of concrete under the slab. The openings must be plugged before applying the procedures of Articles 3.1 and 3.2.

### **3.4 DEFECTIVE CONCRETE**

- .1 The concrete that is not consistent with the requirements of the plans and specifications or where the exposed surface is not accepted by the Departmental Representative will be considered defective.
- .2 Repair work of exposed concrete surfaces should not be undertaken before the Departmental Representative has acknowledged the defect to be corrected.
- .3 Defects that do not affect the structural capacity, such as non-compliant dimensions, details and elevations indicated on the plans, the attachment pin holes and the concrete whose surface comprises small cavities caused by air bubbles or shallow honeycombs:
  - .1 Localized defects can be repaired by methods and with materials whose durability is proven provided that the surfaces of the repairs are the same, in the short and long term, to those of the adjacent surfaces.
  - .2 Parts of the construction that include too many flaws, will be demolished and rebuilt at no cost to the Owner.
- .4 Concrete whose defects affect the capacity of the structure, such as concrete whose strength is insufficient and concrete dotted with honeycomb or imperfections that compromise its structural efficiency, will be demolished and rebuilt at no cost to Departmental Representative.
- .5 Exposed surfaces of repairs are subject to approval by the Departmental Representative. This may require the repair of defects samples to ensure uniformity and similarity of the surfaces and the concealment of joints. If the repairs are rejected because of their appearance, defective concrete parts will be rebuilt to the satisfaction of the Departmental Representative.
- .6 Smudges, streaks and other unsightly irregularities on exposed surfaces must be removed within 24 hours after stripping.

### **3.5 CLEANING**

- .1 Provide trigger sprayers to be connected to garden hoses.
- .2 Designate a cleaning area for tools to limit the consumption of clean water and the volume of runoff.
- .3 Clean concreting equipment in accordance with Section 01 35 43 – Environmental Procedures.

**END OF SECTION**

## **Part 1 General**

### **1.1 REFERENCES**

- .1 Canadian Standards Association (CSA)/CSA International
  - .1 CAN3 A165 SERIES-F94 (C2000), CSA Standards on Concrete Masonry Units (Consists of A165.1, A165.2 and A165.3).
  - .2 CSA A179-F94(C1999), Mortar and grout for unit masonry.
  - .3 CSA-A370-F94(C1999), Connectors for masonry.
  - .4 CSA-A371-F94(C1999), Masonry construction for buildings.
  - .5 CSA G30.14-FM1983(C1998), Carbon steel bars for concrete reinforcement.
  - .6 CAN/CSA G30.18-FM92, Billet-Steel Bars for Concrete Reinforcement.
  - .7 CSA-S304.1-F94(C2001), Design of Masonry Structures (limit state design).
  - .8 CAN/CSA A82.1-FM87(C1999), Fired masonry brick made from clay or shale.

### **1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Technical data sheets
  - .1 Submit product data and specifications and the manufacturer's documentation for products in accordance with Section 01 33 00 – Submittal procedures. Submit safety data sheets required under Information System Hazardous Materials (WHMIS), which must comply with this system, according to Section 01 33 00 - Submittal procedures.
    - .1 Data sheets should indicate the emission rates of VOC in epoxy coatings, zinc coatings and touch up products.
    - .2 Data sheets should indicate the emission rates of VOC in mortars, parging-work mortars, grouts, dyeing agents and admixtures.
- .3 Shop drawings
  - .1 Provide shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
  - .2 Shop drawings must include the list of rebars required, folding details and the installation drawings of the latter.
  - .3 Implementation drawings must indicate the number of reinforcing elements, spikes and anchors required and the size, spacing and location of these elements.

### **1.3 STORAGE AND HANDLING**

- .1 In accordance with manufacturer's written instructions to protect against damage caused by moisture the materials used or stored on site.

## **Part 2 Products**

### **2.1 MASONRY UNITS**

- .1 Standard concrete masonry units: to series CAN3-A165 (CAN3-A165.1) standards.
  - .1 Type: Universal split face slope block, Dimensions: 134 x 305 x 215.
  - .2 Precast steps: Laurentien type by Bolduc or equivalent: Step 90 x 400 x 610, Module 90 90 x 236 x 270.
  - .3 Precast cleanliness slab of the combined foundation slab or equivalent, as specified on the drawing: 80 x 380 x 610.

## **Part 3 Execution**

### **3.1 GENERAL**

- .1 Unless otherwise indicated, perform masonry work in accordance with CSA-A371.
- .2 Run the precast block wall on a cleanliness slab course, as specified on the plan.
- .3 Carry out the masonry work square, plumb and level, and with vertical joints well aligned.
- .4 Provide a storm drainage system with a geotextile and clean stone, as specified on the plan.

### **3.2 PLACEMENT**

- .1 Exposed masonry structures
  - .1 Remove chipped, cracked or otherwise damaged elements from work and replace them with undamaged items.

### **3.3 INSTALLATION TOLERANCES**

- .1 Tolerances indicated in the note of article 5.3 of CSA-A371 standard will apply.

### **3.4 CLEANING**

- .1 Upon completion, clean the site to remove dirt and accumulated debris, due to construction work and the environment.
- .2 Upon completion remove surplus materials, scrap materials, tools and safety barriers.

### **3.5 PROTECTION**

- .1 Protect masonry against marks, loose mortar and other damage. Use protective tarps that do not stain.

**END OF SECTION**



**Part 1            General**

**1.1               RELATED SECTIONS**

- .1       Section 01 33 00 – Submittal procedures.
- .2       Section 01 74 21 – Construction / demolition waste management and disposal.
- .3       Section 03 30 00 – Cast-in-place concrete.

**1.2               REFERENCES**

- .1       American Society for Testing and Materials International, (ASTM)
  - .1       ASTM A53/A53M-07, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
  - .2       ASTM A269-08, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
  - .3       ASTM A307-07b, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2       Canadian Standards Association (CSA)/CSA International
  - .1       CAN/CSA-G40.20/G40.21, General requirements for Rolled or Welded. Structural Quality Steel / Structural Quality Steels.
  - .2       CAN/CSA-S16.1, Limit states design of steel structures.
  - .3       CSA W48-F01, Filler metals and allied materials for metal arc welding (Developed in co-operation with the Canadian Welding Bureau).
  - .4       CSA W59, Welded Steel Construction (Metal Arc Welding) (metric).

**1.3               ACTION / INFORMATIONAL SUBMITTALS**

- .1       Technical data sheets
  - .1       Submit product data, specifications and the manufacturer's documentation for products in accordance with Section 01 33 00 – Submittal procedures.
  - .2       Submit two copies of WHMIS MSDS information (hazardous materials in the workplace), in accordance with Section 01 33 00 – Submittal procedures. Indicate the content of volatile organic compounds (VOCs).
    - .1       For finishes, coatings, paints and sealers.
- .2       Shop drawings
  - .1       Submit required shop drawings in accordance with Section 01 33 00 – Submittal procedures.
  - .2       Shop drawings to indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

**1.4               SHIPPING, STORAGE AND HANDLING**

- .1       Packing, shipping, handling and unloading

- .1 The equipment and materials must be transported, stored, handled and protected in accordance with Section 01 61 00 - General Product Requirements.
- .2 Storage and protection
  - .1 Surfaces must be cleaned of their protective coating during final cleaning only. Provide instructions to the removal of these protections.

## **1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Sort and recycle waste materials in accordance with Section 01 74 21 - Construction / Demolition Waste Management and Disposal.
- .2 Remove from site all packaging materials and dispose of at appropriate recycling facilities.
- .3 Collect and sort all packaging materials, corrugated paper or plastic and place them in appropriate on-site bins for recycling in accordance with Waste Management Plan.
- .4 Ship unused metal materials to metal recycling facility approved by Departmental Representative.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 All machine bolts, screws and nails, etc., shall be in medium construction steel to ASTM A307.
- .2 The reinforcing steel will be delivered free of rust other than that which may have accumulated during transport to the site of work.
- .3 It will be protected at all times against moisture, grease, dirt, mortar or cement until it is finally implemented.
- .4 All welds to meet the requirements of CSA Standard W59-F03 (C2008), entitled "Welded Steel Construction (Metal Arc Welding)" and W47.1 CSA-F09, entitled "Certification companies for fusion welding of steel. " All adjacent welds in galvanized parts will receive a coat of "Galvano-spray" protective paint of the compagny Métalflux or zinga of Zingametal or galvozn of Aerochem.
- .5 Galvanized steel: Drilling and welding should be performed before cold galvanizing. Cold galvanizing must be carried out on all the pieces of steel before final installation. With the exception of all steel parts for the pontoons and steel parts for removable railings apply galvanized hot dip with a zinc layer of at least 600 g / m<sup>2</sup> in accordance with ASTM A123 / A123.
- .6 Steel angles and plates: grade 350W for the angles and 300W for the plates, to CAN/CSA-G40.20/G40.21.
- .7 Generally, in the wooden structure, the length of bolts and nails is determined as follows, unless otherwise specified:
  - .1 Machine bolt with two (2) washers, one of which is countersunk: the total thickness of the pieces to be fastened, plus 50 mm.

- .2 Machine bolt with two (2) countersunk washers: the total thickness of pieces to be fastened.

## **2.2 METAL WORKS – GENERAL**

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Unless otherwise indicated and where required, use flat head self-tapping & shake-proof screws.
- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Exposed welds shall be continuous over the entire length of joint; file or grind weld to a uniform, smooth and even surface.

## **Part 3 Execution**

### **3.1 EXECUTION**

- .1 In the woodwork, each machine bolt will have two (2) ordinary steel washers. The heads and nut bolts shall bear evenly on the washers. They will be countersunk flush on all outer surfaces of the wheel guard and wherever is specified or ordered by the Departmental Representative. The holes for machine bolts will be drilled at the same diameter as the bolts used.

**END OF SECTION**

**Part 1            General**

**1.1               RELATED SECTIONS**

- .1        Section 05 50 00 – Metal fabrications.

**1.2               SECTION CONTAINS**

- .1        The supply of materials and installation of rough carpentry covered in this section of the specifications are devoted to Work on the fishing wharf.

**1.3               REFERENCES**

- .1        American Society for Testing and Materials International (ASTM)
  - .1        ASTM D1761, Standard Test Methods for Mechanical Fasteners in Wood.
- .2        Canadian standards Association (CSA)/CSA International
  - .1        CSA B111-1974(R2003), Wire Nails, Spikes and Staples (Clous, fiches et cavaliers en fil d'acier).
  - .2        CAN/CSA 080-F08, Wood preservation.
- .3        National Lumber Grades Authority (NLGA)
  - .1        Standard Grading Rules for Canadian Lumber, 2008.

**1.4               ACTION/INFORMATIONAL SUBMITTALS**

- .1        Submit required documents and samples in accordance with Section 01 33 00 – Submittal procedures.

**1.5               QUALITY ASSURANCE**

- .1        Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2        Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

**1.6               SHIPPING, STORAGE AND HANDLING**

- .1        Waste management and disposal
  - .1        Separate waste materials for reuse and recycling in accordance with Section 01 74 21 – Construction/demolition Waste Management and Disposal.

## **Part 2            Products**

### **2.1                MATERIALS**

- .1      All wood species will meet the requirements of the NLGA entitled "Grading Rules for Canadian Lumber." Wood quality will be No. 1 or standard. In standard quality, decay will be tolerated.
- .2      All wood used will have on each piece, the A.M.B.S.Q seal. The Contractor shall provide to the Department the A.M.B.S.Q. quality certificate.
- .3      The wood used in the construction will be Douglas fir from the Coast or the Pacific Coast hemlock, the eastern hemlock, red pine and jack pine.
- .4      The Douglas fir from the Coast and the Pacific Coast hemlock will meet the requirements of the British Columbia Lumber Manufacturer's Association standard entitled "Standard Specifications for Construction Grade".
- .5      All wood used will be pressure treated in accordance with CAN / CSA O80 SERIES. All chamfers will be cut before treatment.
- .6      The wood will be cut square before treatment according to NLGA 748-B.
- .7      In no circumstance will spruce and balsam fir will be accepted when treated wood is specified.

### **2.2                WOOD TREATMENT PRODUCT**

- .1      Preservative applied under pressure, according to CAN / CSA O80 SERIES-F08, the wood will be treated with chromated copper arsenate (CCA) with a minimum retention rate: ACC 24.0 kg / m<sup>3</sup>.
- .2      Any pressure-treated material, requiring cutting to be adjusted, will be coated, while it is still dry, with three (3) layers as required in CAN / CSA-080-M. All holes in the timbers should be treated that way as well.

## **Part 3            Execution**

### **3.1                PREPARATION**

- .1      Store wood and derivatives.
- .2      Demolish and disposal of existing wooden features.

### **3.2                STAIRS**

- .1      The existing stairs with handrail near the service building will be demolished. A new ramp will be built as shown in the plan. A modification of the wheel guards must be made on Fisherman's Wharf. And further, one piece of the wheel guard will be integrated with the ramp.
- .2      An existing staircase on the northeast side will be demolished. It will be replaced by new stair with a removable ramp system. It is in prefabricated galvanized steel to slide the posts

of the stair retaining the ramp, by means of steel pins. The assembly shall be both strong and easy to handle.

A ramp with existing landing on the east side of the service building will be modified. Adjust the landing height with the height of the new slab. The floor beams will be changed to an adjust to the new slab. Joists and wood pavements will be one length. The ramp will be redone as the existing, taking into consideration the new height of the wood landing. The existing guardrail will be replaced by a new railing as shown in the plan.

- .3 A ramp with existing landing on the east side of the service building will be modified. Adjust the landing pad with a new 39 mm x 139 mm wooden pavement. The parts used are of a single length. A number of wooden pavements will be adjusted in height to fit with the existing ramp. The existing guardrail will be replaced by a new railing as shown on the plan.
- .4 Two working platforms will be built near the stairs with a removable guardrail system. Working platforms will not be fixed to the wooden pavement.
- .5 Main vertical posts:
  - .1 Vertical posts will consist of squared pieces of wood 102 x 102 mm, placed as shown on the plan. They will be one length from below the bottom pieces to the upper face of the handrail.
  - .2 They will be fastened to each intersection with a piece of wood using lag bolts of appropriate diameter and of suitable length.
- .6 Secondary posts, rails and handrails:
  - .1 The secondary posts will be in wood 51 x 51 mm, placed as indicated on the drawing, and of a single length from the bottom to the upper face of the handrails.
  - .2 They will be fastened at each intersection with a wooden skid and a handrail 51 x 152 mm by means of screws of suitable diameter and length.
- .7 Pieces of wood:
  - .1 Wooden parts treated 203 x 203 mm and 203 x 203 squared will be used to build the staircase.
  - .2 Anticipate an adjustment of some pieces of wood with the existing crib.
  - .3 The beams will be placed as shown in the various figures of the plan. They will be fastened with lag bolts of suitable diameter and length.
- .8 Paneling:
  - .1 Pieces of paneling in treated wood 38 x 203 mm will be installed where indicated on the drawing.
  - .2 The pieces will be of varying lengths.
  - .3 Each piece will be fastened to the coping piece and the facing parts using screws of suitable diameter and length, as shown on the plan.

- .9 Wood pavements:
  - .1 A wood pavement 102 x 203 mm in treated wood and 76 x 203 squared will be installed on the new stairs as indicated on the plan.
  - .2 A wood pavement 38 x 139 mm squared will be installed on the old landing w/ramp as indicated on the drawing.
  - .3 Anticipate an adjustment to fit the new landing with the existing ramp.
  - .4 The pieces used shall be of a single length.

### **3.3 WHEEL GUARD**

- .1 A wheel guard made of two (2) pieces in treated wood 254 x 254 mm shall be built as indicated on the drawing.
- .2 Part of the single construction wheel guard will be bolted with chemical anchoring on an existing slab. Provide spacers in treated wood 600 x 203 x 102.
- .3 The wheel guard will be fastened to the sheet pile subject to piles using cold galvanized steel carriage bolts 19 mm in diameter and of suitable length.
- .4 The wheel guard will be bolted on a cold galvanized steel plate, Pl 455 x 150 x 14, and welded to two continuous angle irons L 200 x 100 x 10 in cold galvanized steel.
- .5 Galvanized 19mm steel bolts will be used to fasten the wheel guard on the steel sheet pile. Provide cold galvanized steel shims to ensure the straight alignment of the wheel guard.
- .6 Provide weepholes in the steel sheet pile as indicated on the drawing.
- .7 All bolt heads will be covered with a Dymeric type of sealant or equivalent.

**END OF SECTION**

**Part 1            General**

**1.1            REFERENCES**

- .1    ASTM International
  - .1    ASTM A53/A53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
  - .2    ASTM A269-08, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
  - .3    ASTM A307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
  - .4    ASTM B209M-07, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate Metric.
  - .5    ASTM B210M-05, Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes Metric.
  - .6    ASTM B211M-03, Standard Specification for Aluminum and Aluminum Alloy Bar, Rod and Wire Metric.
- .2    CSA International
  - .1    CSA O141-F05 C2009, Softwood Lumber.
  - .2    CAN/CSA-Z809-F08, Sustainable Forest Management.
  - .3    CSA B111-1974(R2003), Wire Nails, Spikes and Staples (Clous, fiches et cavaliers en fil d'acier).
  - .4    CSA G40.20/G40.21-F04 C2009, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .5    CSA W48-F06, Filler metals and allied materials for metal arc welding (Developed in co-operation with the Canadian Welding Bureau).
  - .6    CSA W59-FM03 C2008, Welded Steel Construction (Metal Arc Welding) (metric).
  - .7    CAN/CSA-S157/S157.1-F05, Strength Design in Aluminum / Commentary on CSA S157-05, Strength Design in Aluminum.
  - .8    CSA W47.2-FM1987 (C2008), Certification of companies for fusion welding of aluminum
  - .9    CSA W59.2-FM1991 (C2008), Welded Aluminum Construction.
- .3    American Welding Society (AWS)
  - .1    AWS - A5.10/A5.10M 1999(R2007), Specification for Bare Aluminum and Aluminum Alloy Welding Electrodes and Rods.
- .4    Forest Stewardship Council (FSC)
  - .1    FSC-STD-01-001, FSC Principle and Criteria for Forest Stewardship (Principes et critères de gestion forestière).Commission nationale de classification des sciages (NLGA).



- .5 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber, 2012.

## **1.2 ACTION/INFORMATIONAL SUBMITTALS**

- .1 Submit required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

## **1.3 QUALITY ASSURANCE**

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Sustainable development certification.
  - .1 Eco-certified lumber: Submit listing of wood products used, that meet the CAN / CSA-Z809 or FSC or SFI.
- .3 Test reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .4 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

## **1.4 SHIPPING, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and handling
  - .1 Store materials in clean, dry, well ventilated area in accordance with manufacturer's recommendations.
  - .2 Store the timber in order to protect against marks, scratches and scrapes.
  - .3 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 FLOATING PONTOONS

#### **GENERAL REQUIREMENTS FOR TIMBER:**

- .1 Wood used in the construction shall be Douglas Fir, Pacific Coast Hemlock, red pine or jack.
- .2 Douglas Fir and Pacific Coast Hemlock to meet the requirements of the British Columbia Lumber Manufacturer's Association entitled "Standard Specification for Construction Grade".

- .3 Grey pine and Eastern Hemlock shall comply with the requirements of the most recent standard classification edition by the « Eastern Spruce Grading Committee » approved and published by the Canadian Lumber Association, AMBSQ (Association des Manufacturiers de bois de sciage de Québec) and the « Maritime Lumber bureau » except the balsam fir which is not accepted although mention in regulation no1.
- .4 All wood species shall comply with the NLGA 1987 Standard Grading Rules for Canadian Lumber.
- .5 All wood used is "standard" grade or better, and must have the AMBSQ seal. The Contractor shall provide the Department with the AMBSQ quality certificate.
- .6 The quality of the wood will be No. 1, 35% with sound knots or standard, according to the NLGA 1987 Standard Grading Rules for Canadian Lumber. In the standard quality, no decay in any form whatsoever will be tolerated.

#### FLOATING PONTOONS:

- .1 All the wood used in this project will be treated with a water preservative under pressure in accordance with CAN / CSA-080 Series-08. The net retention will be: 19 kg / m<sup>3</sup>. Before the treatment, all parts must be cut to size. With the exception of the upper bracing and reinforcing parts requiring cutting to be adjusted, a second treatment will be necessary in the severed portions. They will be coated, while still dry, with three (3) preservative layers as required in CAN / CSA-080 Series-08. All holes in the timbers will be treated in this way.
- .2 The lengths of the various parts must be validated on the plans according to their position in the floating pontoon. The dimensions of the various parts of timber used in the pontoons are:
  - .1 For the pontoons
    - .1 Pavement : 51 x 152 squaring with 6 mm spacing between each piece.
    - .2 Reinforcing parts: 76 x 152 squaring.
    - .3 Bracing: 152 x 152 squaring.
    - .4 Cross pieces: 152 x 152 squaring.
    - .5 Longitudinals: 152 x 152 squaring.
    - .6 Wheelguard with bevel: 152 x 152 squaring.
    - .7 Spacers: 51 x 152 x 400 and 51 x 152 x 800 squaring.
    - .8 Fenders: 76 x 152 x 760 squaring.
  - .2 For styrofoam
    - .1 Bottom support: 51 x 152 squaring.
    - .2 Longitudinals: 102 x 152 squaring.
  - .3 Transition parts
    - .1 Longitudinals: 38 x 100 squaring.
    - .2 Support pieces: 38 x 140 squaring.
    - .3 Spacers pieces: 19 x 100 squaring.

FLOATING PONTOONS FASTENING STEEL:

- .1 Unless otherwise clearly indicated on the drawings, all steel parts are galvanized. Galvanised steel: hot dip shop galvanizing with application of a zinc layer of at least 600 g / m<sup>2</sup>, in accordance with ASTM A123 / A123M. The drilling and welding should be performed before galvanizing.
- .2 Steel angles required to fix the pontoon structure are HSS 152 x 152 x 11.
- .3 The bolts required to secure the steel are M27 x 200 and 175. Cf plans for connection details.
- .4 Stiffeners must be attached to the HSS profile. Their dimensions are ½ 75 x 75 x 12.7 and ½ 200 x 50 x 12.7. Cf plans for connection details.
- .5 Bracing steel cables have 19 mm in diameter and ± 14 100 mm in length. Provide 3 cable clamps on each side. The cables should be complemented by an ultra robust stainless steel 316 Crosby rope clip. Include a shackle G-209-A 7/8 by Crosby or equivalent.
- .6 Fastener steel plates: 252 x 252 x 19.
- .7 Pin Plates: 25 mm thick.
- .8 Exposed welds shall be continuous over the entire length of joint; file or grind weld to a uniform, smooth and even surface.

BOLTS, NAILS, SCREWS AND MISCELLANEOUS STEEL FOR PONTOONS:

- .1 Unless otherwise indicated on the drawings, all steel parts are galvanized. Galvanised steel: hot dip shop galvanizing with application of a zinc layer of at least 600 g / m<sup>2</sup>, in accordance with ASTM A123 / A123M. Except for nails which are in stainless steel.
- .2 Lag screws: the total thickness of parts minus 50 mm.
- .3 Machine bolts provided with two non-countersunk washers: the total thickness of the pieces to be fastened minus 60 mm
- .4 Machine bolts provided with two washers, only one being non-countersunk: the total thickness of the pieces to be fastened minus 30 mm.
- .5 Machine bolts provided with two countersunk washers: the total thickness of the pieces to be fastened.
- .6 Stainless steel ringed nails: the thickness of the thinnest part to be fastened, multiplied by two and a half (2.5).
- .7 The sizes of bolts, nails, and screws used for the pontoons are as follows:

Wheelguard:	machine bolt M15 x 400
Longitudinal pieces:	machine bolt M 15 x 750
Reinforcement and bracing:	machine bolt M12 x 330
Bracing:	screw M15 x 250
Bracing:	nails 130 mm
Styrofoam cushion:	threaded rod M15

PONTOON WHEELGUARD:

- .1 The lengths of the wheel guards and spacers must be validated on the plans.
- .2 The size of the wood pieces for the wheel guard will be 152 x 152.
- .3 Install a 51 x 152 spacer to raise the wheel guard.
- .4 The wood must be cut to the dimensions on the plan prior to treatment in accordance with NLGA 748-B.
- .5 In no circumstance will spruce and balsam fir be accepted when treated wood is specified.

FLOATING CUSHIONS:

- .1 Floating balls of plastic foam will be produced from BB type extruded polystyrene as manufactured by The Dow Chemical Company or equivalent accepted in advance by the Departmental Representative.
- .2 Styrofoam cushions (floating balls) to measure 50 x 500 x 2400 long.
- .3 Floating balls shall not be affected by salt water or freshwater.
- .4 Floating balls to contain a fire retardant adhesive able to stop the flame spread of a small fire.
- .5 One (1) cubic metre of styrofoam should be able to float a mass representing a weight of 880 kg.

REFLECTING FILM:

- .1 Apply the yellow reflective film 300 x 50 Type diamond prismatic grade by 3M or equivalent.
- .2 The film will be pressure-sensitive and placed on an aluminum strip.
- .3 Aluminum strip must be fixed with A316 stainless steel screws on the side of the wheel guard as shown in the plan.

.2 FOOTBRIDGE

GENERAL REQUIREMENTS FOR ALUMINUM:

- .1 Aluminum bars, rods and wire: to ASTM B211M.
- .2 Aluminum bars, rods, wire, profiles, extruded aluminum tubes and aluminum alloy: to ASTM B221M.
- .3 Aluminum sheet or plate, to ASTM B209M.
- .4 Aluminium tubes shaped by stretching: to ASTM B210M.
- .5 Aluminium bolts and rivets: to ASTM B316M.
- .6 Aluminium welding rods: to AWS - A5.10/A5.10M.
- .7 The elements must be fabricated to CAN/CSA-S157.
- .8 Fit the construction aluminum components according to the information provided in accordance with CAN / CSA S157 and the assembly drawings.
- .9 All the aluminum of the footbridge bridge structure will grade 6061-T6.
- .10 Welding rods shall be grade 4043.

GUARD RAIL TO ENTER THE BRIDGE ON THE EXISTING CONCRETE BLOCK:

- .1 Aluminum plate, 175 x125 x 12.7
- .2 Aluminum support bar, 76.2 x 76.2 6.35
- .3 Aluminum top rail, 82.55  $\phi$  x 6.35
- .4 Aluminum intermediate rail, 57.15  $\phi$  x 6.35
- .5 Aluminum hand rail, 57.15  $\phi$  x 6.35
- .6 Machine bolts in stainless steel, grade A316: M 12.7 x 150.
- .7 Provide a self-adhesive membrane type Soprema COLPHENE BSW 3 mm thick, or equivalent, between the post and the concrete surface.

FLOATING PONTOON GUARD RAILS:

- .1 Aluminum fastening shoe.
- .2 Aluminum support bar, 76.2 x 76.2 6.35
- .3 Upper aluminum rail, 82.55  $\phi$  x 6.35
- .4 Lower galvanized steel rail, 57.15  $\phi$  x 6.35
- .5 Machine bolts in stainless steel, grade A316, M 12.7

ALUMINUM FOOTBRIDGE:

- .1 The dimensions of the components included in the construction of the aluminum footbridge are indicated on the drawing.
- .2 Unless otherwise indicated, all aluminum welds are 5 mm.
- .3 Metal gratings shall be Grip Span D-30820-A type. The width is 178 mm and the length 1 340 mm. They should be spaced 4 mm each and welded at the four corners.

OTHER MATERIALS:

- .1 Wheels and polymer bearings are designated by the code name 6xAU\_ and can be provided by the company "Plastic Miller Ltd.". An equivalent product meeting the same specifications may be accepted.
- .2 Axles, connecting rods and holding pins are in stainless steel grade A316.

**2.2 ACCESSORIES**

- .1 Nails: to CSA B111, galvanized to ASTM A123/A123M for out door use, indoor use in damp conditions and treated wood in stainless steel.
- .2 Wood screws in stainless steel of type and size appropriate to the intended use.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Verification of the conditions: before installing the wood and wood derivative items, ensure that the substrates or surfaces previously implemented under other sections or contracts are acceptable and allows to perform the work in accordance with manufacturer's written instructions.

- .1 Proceed to visual inspection of surfaces/substrates with Departmental Representative in attendance.
- .2 Immediately inform Departmental Representative of any unacceptable conditions identified.
- .3 Proceed with installation only after correcting the unacceptable conditions and receiving written approval of the Departmental Representative.

### **3.2 INSTALLATION**

- .1 Unless otherwise indicated, perform carpentry work in accordance with AWMAC quality standards.
- .2 Build aluminum structures in accordance with CAN / CSA S157.
- .3 Perform welding work to CSA W59.2.
- .4 Welding companies to be certified under CSA Standard W47.2, section 2.1, in the case of fusion welding of aluminum, or CSA Standard W55.3, in the case of resistance welding.

### **3.3 CLEANING**

- .1 Progress cleaning: clean in accordance with Section 01 74 11 – Cleaning.
  - .1 Leave work area clean at end of each day.
- .2 Final cleanup: remove surplus materials, rubbish, tools and equipment.
  - .1 Waste management: separate waste materials for reuse / recycling, and recovery.

### **3.4 PROTECTION**

- .1 Protect installed features and elements from damage during construction.
- .2 Repair damage to adjacent materials caused by carpentry specialties installation.

**END OF SECTION**

## **Part 1 General**

### **1.1 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM) / ASTM International
  - .1 ASTM C117-04, Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.
  - .2 ASTM C136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
  - .3 ASTM D422-63, Standard Test Method for Particle-Size Analysis of Soils.
  - .4 ASTM D698-00ae1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup>) (600 kN-m/m<sup>3</sup>).
  - .5 ASTM D1557-07e1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup>) (2,700 kN-m/m<sup>3</sup>).
  - .6 ASTM D4318-10, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
  - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric Series.
- .3 Canadian Standards Association (CSA)/CSA International
  - .1 CAN/CSA-A3000, Cementitious Materials Compendium (contains A3001, A3002, A3003, A3004 and A3005).
    - .1 CSA-A3001, Cementitious Materials for Use in Concrete.
  - .2 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .4 Ministère des Transports du Québec.
  - .1 Tome VII – Matériaux 2016.

### **1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product Data:
  - .1 Submit particle-size distribution and manufacturer's printed product literature and data sheets for aggregate materials and include product characteristics, performance criteria, physical size, finish and limitations.

### **1.3 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Transportation and handling: handle and transport aggregates to avoid segregation, contamination and degradation.

## Part 2 Products

### 2.1 MATERIALS

- .1 Granular materials must meet the following particle-size distribution:

PARTICLE-SIZE RANGES SPECIFIED FOR FOUNDATION, SUB-BASE, GRANULAR SURFACE COURSE AND SHOULDER										
Granular Materials	Sieve (mm)								Sieve (µm)	
	112	80	56	31,5	20	14	5	1,25	315	80
(% passing)										
MG-20				100	90-100	68-93	35-60	19-38	9-17	2-7
MG-20b				100	90-100	68-93	35-60	19-38	9-17	5-11
MG-56		100	82-100	50-80	---	---	25-50	11-30	4-18	2-7
MG-112	100	---	---	---	---	---	35-100	---	---	0-10

- .2 Aggregate characteristics: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, free from adherent coatings and detrimental amounts of disintegrated pieces or other deleterious substances.
- .3 Liquid limit: maximum 25, to ASTM D 4318.
- .4 Plastic limit: maximum 6, to ASTM D 4318.
- .5 Los Angeles abrasion test: maximum 50.
- .6 Micro-Deval test: maximum 40.
- .7 Combined Micro Deval and Los Angeles: maximum 85.
- .8 Organic matter: maximum 0,8%.
- .9 Fine aggregates satisfying requirements of applicable section to be one, or blend of following:
- .1 Screenings produced in crushing of quarried rock, boulders, gravel or slag.
- .10 Coarse aggregates satisfying requirements of applicable section to be one of or blend of following:
- .1 Crushed rock.
- .2 Gravel and crushed gravel composed of naturally formed particles of stone.
- .3 Crushed stone 50-200mm shall be crushed from a quarry, cleaned and free of fine aggregates.

### 2.2 SOURCE QUALITY CONTROL

- .1 Inform Departmental Representative of proposed source of aggregates and provide access for sampling one (1) week minimum before starting production.
- .2 If materials from proposed source do not meet, or cannot reasonably be processed to meet, specified requirements, locate alternative source.
- .3 Notify Departmental Representative one (1) week minimum in advance of proposed change of material source.
- .4 Acceptance of material at source does not preclude future rejection if it fails to conform to requirements specified, lacks uniformity, or if its field performance is found to be unsatisfactory.



**Part 3            Execution**

**3.1                CLEANING**

- .1        Progress Cleaning: clean in accordance with Section 01 74 11 – Cleaning.

**END OF SECTION**

**Part 1 General****1.1 RELATED SECTIONS**

- .1 01 11 01 – Work-related General Information.
- .2 31 05 16 – Aggregate.
- .3 31 32 19.01 – Geotextile.

**1.2 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM).
  - .1 ASTM C117-04, Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.
  - .2 ASTM C136-05, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
  - .3 ASTM D422-632002, Standard Test Method for Particle-Size Analysis of Soils.
  - .4 ASTM D1557-07, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN-m/m<sup>3</sup>).
  - .5 ASTM D4318-05, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
  - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

**1.3 DEFINITIONS**

- .1 Excavation classes: one (1) class of excavation will be recognized; common excavation.
  - .1 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.
- .2 Unclassified excavation: excavation of deposits of whatever character encountered in work.
- .3 Waste material: excavated material unsuitable for use in work or surplus.
- .4 Recycled backfill materials: materials deemed inert obtained from various sources and modified for use in the fill zone as required.
- .5 Unfit materials
  - .1 Compressible materials, chemically unstable and with very little resistance.
  - .2 Frost-prone materials
    - .1 Fine grain soil having a plasticity index of less than 10, according to ASTM D4318, and a particle size which is within the specified limits, according to ASTM C136 and ASTM D422 testing. The designation of the screen shall comply with CAN / CGSB 8.2 M88 standard.

## .2 Table

Sieve designation	% passing
2,00 mm	100
0,10 mm	45 - 100
0,02 mm	10 - 80
0,005 mm	0 - 45

.3 Coarse grain soils whose percentage of passing the 0.075 mm sieve is greater than 20% by mass.

.6 Dimensionally stabilised backfill materials: very yielding mix composed of cement, concrete aggregates and water that will not slump after placement in trenches designed to receive utility conduits and which can be readily excavated (i.e., without prior preparation).

**1.4 ACTION/INFORMATIONAL SUBMITTALS**

.1 Submit the required documents and samples in accordance with Section 01 33 00 – Submittal procedures (MG-20, and CG-14).

.2 Preconstruction submittals

.1 Submit construction equipment list for major equipment to be used in this section prior to start of work.

.2 Submit records of underground utility locations and include: location map of existing utilities on premises, data on easements for the passage of utilities, location maps of rerouted or obsolete conduits as appropriate.

.3 Samples

.1 Submit required samples in accordance with Section 01 33 00 – Submittal procedures.

.2 At least four (4) weeks before the start of work, notify the Departmental Representative of the source of supply proposed for fill material, and ensure access to it for sampling.

.3 Submit samples of 70 kg each type of specified backfill.

**1.5 QUALITY ASSURANCE**

.1 Do not use the soil before the written report of the analysis is reviewed and accepted by the Departmental Representative.

.2 Health and safety

.1 Take the appropriate health and safety for construction measures in accordance with Section 01 35 29.06 – Health and safety requirements.

**1.6 WASTE MANAGEMENT AND DISPOSAL**

.1 Separate waste for recycling in accordance with Section 01 74 21 – Construction / Demolition Waste Management and Disposal.

**1.7 EXISTING CONDITIONS****.1 Buried services**

- .1 Before commencing work verify location of buried services on and adjacent to site.
- .2 Confirm locations of buried utilities by careful test excavations as appropriate.
- .3 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered as indicated.
- .4 Where utility lines or structures exist in area of excavation, obtain direction of Departmental Representative before removing or re-routing. Costs for such Work to be paid by Departmental Representative.
- .5 Record location of maintained, re-routed and abandoned underground lines.
- .6 Confirm locations of recent excavations adjacent to area of excavation.

**.2 Existing buildings and surface features**

- .1 Conduct, with Departmental Representative, condition survey of existing buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks, pavement, survey bench marks and monuments which may be affected by work.
- .2 Protect existing buildings and surface features from damage while work is in progress. In event of damage, immediately make repair to approval of Departmental Representative.

**Part 2 Products****2.1 MATERIALS**

- .1 Backfill: Cf Section 31 05 16 – Aggregate.

**Part 3 Execution****3.1 PREPARATION /PROTECTION**

- .1 Remove, within the limits indicated, the accumulated obstacles at the surface of the excavation area.
- .2 Protect buried services that are required to remain undisturbed.

**3.2 STOCKPILING**

- .1 Stockpile fill materials where indicated by the Departmental Representative.
  - .1 Stockpile fill materials in order to prevent segregation.
- .2 Protect fill materials against contamination.
- .3 Take appropriate control measures against erosion and sedimentation to prevent the migration of sediments outside the boundaries of the site and to the water body.

**3.3 EXCAVATION**

- .1 Notify Departmental Representative at least seven (7) days before the start of excavation.
- .2 Excavate to lines, grades, elevations and dimensions as indicated.
- .3 No compensation will be paid for excavation work outside the demolition zone or limits determined by the Departmental Representative.
- .4 Excavation must not interfere with bearing capacity of adjacent foundations.
- .5 Stockpiled debris and materials must be deposited at a sufficient distance from the excavation area, as required in the safety code for construction.
- .6 Remove debris from site.
- .7 Do not obstruct the flow of runoff or natural watercourse.
- .8 Completed excavations must be approved by Departmental Representative.

**3.4 FILL TYPES AND COMPACTION**

- .1 Of material of the type indicated on the plan. The densities obtained by compacting are percentages of maximum densities calculated according to ASTM D1557.
  - .1 Backfill for extension of the slab:
    - .1 Ascertain that no frozen material is placed.
    - .2 Place the materials on a clean, unfrozen surface free of snow and ice.
    - .3 Upper foundation: place a layer of 150 mm with MG-20 compacted backfill, compact up to 98% of modified Proctor to ASTM D1557.
  - .2 Other fills:
    - .1 Ascertain that no frozen material is placed.
    - .2 Place the materials on a clean, non frozen surface free of ice and snow.
    - .3 Compact the course of the rain gutter of the concrete wall in layers of 150 mm thick. Backfill the trench by successive layer of 300 mm. Level the work area so as to fill the unevenness of the site, as shown on the plan.

**3.5 BACKFILLING AND COMPACTING**

- .1 The compaction equipment must be capable of obtaining materials having the density required for this project.
- .2 Do not backfill before the inspection and approval of facilities by Departmental Representative.
- .3 The areas to be backfilled shall be free of debris, snow, ice, and frozen water or soil.
- .4 Do not use fill materials that are frozen or contain snow, ice or debris.
- .5 Place MG-20 crushed stone in uniform layers not exceeding 150 mm compacted thickness, to specified levels. Compact each layer before applying the next layer.

- .6 Profile and alternately compact layers for a solid foundation, smooth and evenly compacted.
- .7 Add, during compaction, the water necessary to obtain the specified density.
- .8 Correct surface irregularities by loosening the soil and adding or removing material until the level of the surface is within specified tolerances.

### **3.6 SITE RESTORATION**

- .1 Upon completion of work, remove waste materials and debris in accordance to Section 01 74 21 - Construction/Demolition Waste Management and Disposal, grade the slopes and correct any defect as directed by the Departmental Representative.
- .2 Clean and rehabilitate the areas affected by the work, according to the Departmental Representative's guidelines.

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1        Supply and placement of polypropylene geotextile used in protection, filtration or drainage structures, breakwaters, retaining walls, roadbeds and railroad beds, the purpose of which is to:
  - .1        Act as hydraulic filters allowing the seeping of water while retaining soil strength of granular structure.

**1.2            RELATED SECTIONS**

- .1        Section 01 33 00 – Submittal procedures.
- .2        Section 01 74 21 – Construction / demolition waste management and disposal.
- .3        Section 31 23 33.01 – Excavating and backfilling.

**1.3            REFERENCES**

- .1        American Society for Testing and Materials International, (ASTM).
  - .1        ASTM A123 / A123M - 09 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .2        ASTM D4491-99a(2004)e1, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
  - .3        ASTM D4595-09, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
  - .4        ASTM D4716-08, Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
  - .5        ASTM D4751-04, Standard Test Method for Determining Apparent Opening Size of a Geotextile.
- .2        Canadian General Standards Board (CGSB).
  - .1        CAN/CGSB-4.2 no. 11.2-M89(nov. 2004), Textile test methods - bursting strength - ball burst test (September 1989 reaffirmed).
  - .2        CAN/CGSB-148.1, Methods of testing geosynthetics (complete set).
    - .1        No. 2-M85, Methods of testing geosynthetics: Mass per Unit Area.
    - .2        No. 3-M85, Methods of testing geosynthetics: Thickness of Geotextiles.
    - .3        No. 6.1-93, Methods of testing geosynthetics: Bursting Strength of Geotextiles Under No Compressive Load.
    - .4        No. 7.3-92, Methods of testing geosynthetics: Grab Tensile Test for Geotextiles.
    - .5        No. 10-94, Methods of testing geosynthetics: geotextiles: filtration opening size.

.3 Canadian Standards Association (CSA)/CSA International.

.1 G40.20-04/G40.21-04 (R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

## **1.4 SUBMITTALS**

.1 Supply the specifications of the products offered.

## **1.5 SHIPPING, STORAGE AND HANDLING**

.1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

## **Part 2 Products**

### **2.1 MATERIALS**

.1 Geotextile: non-woven synthetic fibre fabric, supplied in rolls.

.1 Width: at least 3,5 m.

.2 Length: at least 25 m.

.3 Thickness: at least 1,1 mm, to ASTM D463.

.4 Nonwoven needle punched, polypropylene.

.2 Physical properties:

.1 Tensile strength, 550 N, to CAN 148.1 No.7.3.

.2 Elongation at break, 45 – 105 %, to CAN 148.1 No.7.3.

.3 Tear strength, 250 N, to CAN 4.2. No.12.2.

.4 Bursting strength, 1585 KPa, to CAN 4.2. No.11.1.

.3 Hydraulic properties:

.1 Permeability, 0.230 cm/s, to CAN 148.1 No.4.

.2 Permittivity, 1,34 s<sup>-1</sup>, to CAN 148.1-4.

.4 Securing pins and washers: to CAN/CSA-G40.21, Grade 300W, to be hot-dipped galvanized in accordance with ASTM A123 with minimum coating of 600 g/m<sup>2</sup> of zinc.

.5 Factory seams: sewn in accordance with manufacturer's recommendations.

.6 Thread for sewn seams: equal or better resistance to chemical and biological degradation than geotextile.

## **Part 3 Execution**

### **3.1 PLACEMENT**

.1 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position with weights and securing pins.

.2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.



- .3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.
- .4 Overlap each successive strip of geotextile 600 mm over previously laid strip.
- .5 Prevent movement of geotextiles and protect against damage or deterioration before, during and after the placement of protection layers.
- .6 Place the protection layer within four (4) hours following the installation of the geotextile.
- .7 Replace damaged or deteriorated geotextile to approval of Departmental Representative.
- .8 Place and compact backfill layers to Section 31 23 33.01 – Excavating, trenching and backfilling.

### **3.2 CLEANING**

- .1 Remove of construction waste from site and dispose of in an environmentally friendly manner, in accordance with regulatory requirements.

### **3.3 PROTECTION**

- .1 Prohibit vehicular traffic directly on geotextiles.

**END OF SECTION**