

PUBLIC SERVICES AND PROCUREMENT CANADA

**HERITAGE CLIENTS SERVICES TEAM
QUEBEC REGION**

**ENVIRONMENT CANADA
NWA LAKE SAINT-FRANÇOIS**

**CONSTRUCTION OF A NEW OBSERVATION TOWER
DIGUE-AUX-AIGRETTES SECTOR
DUNDEE, QUÉBEC**



Ref. no : R.094850.001

**FOR TENDER
Date: December 2021**

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FOR TENDER

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Part 1 General

1.1 WORK BY OTHERS

- .1 Not used

1.2 WORK AS DEFINED IN CONTRACTUAL DOCUMENTS

- .1 The work to be done as indicated in the current contract consists primarily, but is not limited to:
 - .1 Construction of a new observation tower, including the construction of the stairs, landings and roofing;
 - .2 Rehabilitation of the site after the work.
- .2 Specifically, the work includes, but is not limited to, the provision of labor, materials and equipment, and all operations necessary to:
 - .1 Site Preparation for Work;
 - .2 Installation of pile foundations;
 - .3 Construction of the tower, stairs and landings;
 - .4 Construction of the roof and cedar cladding;
 - .5 Rehabilitation of the site.

1.3 WORK EXECUTION ORDER

- .1 Coordinate the progress schedule of work according to occupancy;
- .2 Steps to provide for the completion of work, scheduling remains the responsibility of the contractor:
 - .1 Site installation;
 - .2 Site preparation, including removal of localized topsoil;
 - .3 Installation of the pile;
 - .4 Construction of the tower;
 - .5 Cleaning and restoring the premises to its original state.
- .3 Site Review: In order to become familiar with the terms of the project and to obtain all the information necessary for the proper performance of the contract, examine the work site. The ignorance of the conditions of the premises will in no way constitute a valid reason for claiming an additional payment.

1.4 CONTRACTOR USE OF PREMISES

- .1 The Contractor shall consider that the work is carried out in a National Wildlife Area. As such, only the licensed premises shall be used by the Contractor.
- .2 Site areas may be used without restriction until substantial completion of the work.
 - .1 Ensure work is performed within limits specified in contract documents. Do not clutter the premises unreasonably with materials.
 - .2 At no time shall it be permitted to move, park equipment or any other vehicle and store material on areas of vegetation.

- .3 Do not overload or allow any part of the structure to be overloaded in order not to compromise its integrity.
- .4 Find and pay for additional work areas or warehouses required to perform work under this Contract.
- .5 Parking: See section 01 52 00 - Site installation

1.5 ACCESS PATH

- .1 Only the vehicles, machinery, and equipment necessary for the execution of the work are authorized on the site, in the area permitted for the usage of the premises is limited to the areas necessary for the execution of the work, storage, and access in order to:
 - .1 The use of the premises by the public for the zones on the outside of the construction site.
 - .2 Maintain fire access/control
- .2 The Contractor will need to determine a working method that will limit, if possible, the traffic flow. The construction zone access must minimize the disturbance of the premises and the environment.
- .3 The Contractor will need to cross paths and tracks with machinery in order to reach the work site. The Contractor will need to repair any damage done to the pavement, grass, gravel, etc., after the crossing of the material.
- .4 A grass path must be used by the contractor to access the work site.

1.6 SIGNALMAN

- .1 Contractor shall provide signallers when using access roads outside of work area.

1.7 WORK HOURS:

- .1 The Contractor is responsible that the work respects decent work hours (from 7:30 am to 5 pm, from Monday to Friday) in order to limit the risk of disrupting the residents and the public. The applicable municipal regulation must also be followed.
- .2 The transport of materials should be done at the beginning and end of the day to minimize the inconvenience for the users of the reserve, before 8:00 and after 16:00.

1.8 INSTALLATION OF THE WORK

- .1 The Contractor must respect the following procedures for the installation of the work to be built:
 - .1 Locate survey reference points on the work site as identified on the plans.
 - .1 Arrange for an on-site meeting with the Departmental Representative after the establishment of the anchor points by the surveyor mandated by the contractor. Work cannot commence until written approval of the positioning of the piles by the Departmental Representative is received.
 - .2 Submit DWG Survey File to Departmental Representative within 48 hours of initial survey and all survey adjustments during execution of Work.
 - .2 Plant the alignments, levels, and the benchmarks for the work to be built, these shall be done with respect to the geometry and elevations indicated in the plans.

- .3 Determine excavations, column lengths and anchor angles for further work and for control of missing materials
- .4 Implant pile foundation and mark reference elevations
- .5 Check final location of the piles.
- .6 In the case where the Contractor's work does not conform, all rework will be conducted at the expense of the Contractor.

1.9 REQUIRED DOCUMENTS

- .1 Maintain at job site, one copy 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.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 11 01 – Work related general information
- .2 Section 01 32 16.07 – Construction progress schedule - bar (GANTT) chart.
- .3 Section 01 52 00 – Construction facilities.
- .4 Section 01 74 11 – Cleaning

1.2 SPECIAL REQUIREMENTS

- .1 This section presents various specific requirements that need to be met, at all times, during the work. These specific requirements include:
 - .1 Coordinate the work with the Departmental Representative in order to permit the normal operations of the building and its occupants.
 - .2 Noisy work will not be performed from Monday to Friday, between the hours of 5:00 PM and 7:00 AM and any time on weekend. Noisy work consists of, but is not limited to, deliveries of material, machinery or other items, the starting of machinery motors, demolition work, drilling related to the installation of anchors, concrete reinforcement bars and/or screws, and foundation work. The Departmental Representative reserves the right to stop work during normal working hours if the work is deemed to be too noisy.
 - .3 Submit the work schedule in accordance with section 01 32 16.07 Construction Progress Schedule -Bar (Gantt) Chart.
 - .4 Ensure that the General Contractor's onsite workers are aware of the regulations and respect them, most especially the rules concerning fire safety, traffic, and construction site safety.
 - .5 Ensure that the access points to the construction site remain blocked whenever the site is not in use. The General Contractor is responsible for providing protection against trespassing.
 - .6 The Contractor must deliver materials between the parking area and the work site between 7:00 am and 8:00 am or between 4:00 pm and 5:00 pm.
 - .7 No machinery traffic will be permitted on the dike in order not to compromise it's structural integrity.
 - .8 At all times, the General Contractor will provide two (2) parking spaces exclusively reserved for the Departmental Representative and his guests.
- .2 This list of special requirements is non-exhaustive and the General Contractor must comply with all of the requirements stated in the specifications.

1.3 CONSTRAINTS FOR THE OCCUPATION OF ACCESS PATH

- .1 The General Contractor must refer to section 01 52 00 - Construction Facilities for the site boundaries to be respected.

1.4 SECURITY

- .1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.

1.5 BUILDING SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions. Smoking is not permitted.

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 UNIT PRICE OR LUMP SUM

- .1 The total contract amount is broken down into a description of certain work paid on a unit basis. The balance of work and/or special requirements and/or other expenses related to the contract are paid on a one-time lump sum basis.
- .2 Unless otherwise specified in the description of the unit items, each of the submitted unit prices and the one-time lump sum price must include all expenses, work, disbursements, payments, direct or indirect costs, mobilizations, demobilizations and acts, all facts, and all liabilities, obligations, omissions and errors of the Contractor in relation to the performance of the contract. These prices also include all general business expenses: administration, profits, benefits, insurance, contributions, interest, rents, taxes and other incidental expenses. It must include losses and damages which may result from the nature of the work, price and wage fluctuations, business risks, strikes, delays not attributable to the Departmental Representative, transportation restrictions, accidents and acts of nature.
- .3 The unit prices and the one-time lump sum price submitted at the time of tender represent the entirety of the Contractor's compensation and incorporate all types of cost items for the entire project. The cumulative price submitted includes all costs for the work shown on the drawings and described in the specifications, including the costs for all special requirements of the construction specifications or general contract clauses. The Contractor must prepare the tender diligently to include the costs submitted for all work and general or special contract requirements in a relevant item in the tender. No claim for additional costs for claiming work shown on the drawings or described in the specifications, the description of which is not explicitly stated in one of the item descriptions in the tender form,

1.2 DEFINITION

- .1 Lump sum: when the work is determined in a precise and detailed manner and a price is agreed and accepted by both parties for the entirety.
- .2 Unit price: when the specifications relative to the work to be done is determined in a precise and detailed manner and that all the quantities are estimated and given in the accrual voucher.

1.3 BREAKDOWN OF THE ONE-TIME LUMP SUM AMOUNT

- .1 Before awarding the contract, the Contractor with the lowest compliant bid must provide a breakdown of its one-time lump sum price according to the one-time lump sum price table provided at the end of this section not more than 48 hours after the opening of tenders. **The one-time lump sum price table shall not be submitted with the tender documents, but only when the lowest compliant tenderer is known.** The breakdown of the one-time lump sum price shall comply with the breakdown required in the same table. Subject to the Departmental Representative's approval, the Contractor may suggest the inclusion of additional items in the one-time lump sum price (breakdown) table to further distribute the submitted one-time lump sum price. The sum of the amounts submitted for the

various items in the one-time lump sum price (breakdown) table must equal the one-time lump sum price quoted. The Departmental Representative's approval of the breakdown of the submitted prices is mandatory and is a prerequisite to the recommendation necessary to award the contract. The prices quoted in the one-time lump sum price (breakdown) table will be used for preparing payment requests throughout the project.

1.4 DESCRIPTION OF THE ARTICLES IN THE UNIT PRICE TABLE

.1 Lumber

.1 This item will be paid by the linear meter according to the dimensions detailed in the schedule. This item includes: The supply and processing of wood pieces according to dimensions, classifications and surface finishes requested. It also includes taking measurements, cutting, on-site treatment of cuts and holes, moving wood, making all assemblies without plates, galvanized hardware for these assemblies, setting up and final adjustment of the wood, implementing and all incidental expenses. The Contractor must verify the quantities in the form before the initial order. Only the quantities put in place are payable. The Contractor must consider in his order and in his price that cut and non-installed parts are not payable. If quantities are added to the quantities on the packing slip, they must be approved by the Departmental Representative prior to the order.

.2 Earthwork and exterior improvements

.1 Clearing and grubbing

.1 This price remunerates, by square meter (m²), all necessary measures, actions and supplies such as, but not limited to, management, labor, tools and machinery, equipment, materials, surveys, permits, professional services and construction engineering for the excavation, preparation, clearing, disposal and deforestation of shrubs whose diameter (at 1.2m from the ground) is smaller than 150mm, the grubbing, transportation, storage and handling, cleaning and any activity necessary to complete the work including expenditures to perform work not specifically described, such as plans, specifications or other tender documents, but deemed necessary to make them conform to the rules of art.

.2 Isolated trees cutting and grubbing

.1 This item will be paid at a unit price. This item includes: all necessary measures, actions and supplies such as, but not limited to, management, labor, machinery and equipment, equipment, materials, records, permits, professional services and construction engineering for the excavation, preparation and felling and grubbing of isolated trees whose diameter at 1.2m from the ground is greater than 150mm. The price also includes transportation and off-site disposal as well as any activity necessary to complete the work including expenses to perform work not specifically described, either plans or specifications or other tender documents, but deemed necessary for to comply with the rules of art.

1.5 APPLICATIONS FOR PROGRESS PAYMENT

- .1 Make applications for payment on account as monthly 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.
- .3 Submit to the Department Representative, at least 14 days before first application for payment. Schedule of values for parts of Work, aggregating total amount of Contract Price, to facilitate evaluation of applications for payment.

1.6 SCHEDULE OF VALUES

- .1 Provide schedule of values supported by evidence as the Department Representative may reasonably direct and when accepted by the Department Representative, be used as basis for applications for payment.
- .2 Include statement based on schedule of values with each application for payment
- .3 Support claims for products delivered to Place of Work but not yet incorporated into Work by such evidence as the Department Representative may reasonably require to establish value and delivery of products.

1.7 PROGRESSIVE RELEASE OF HOLDBACK

- .1 Where legislation permits, if the Department Representative has certified that Work of subcontractor or supplier has been performed prior to Substantial Performance of Work, Owner shall pay holdback amount retained for such subcontract Work, or products supplied by such supplier, on day following expiration of holdback period for such Work stipulated in lien legislation applicable to Place of Work.
- .2 In addition to provisions of preceding paragraph, and certificate wording, ensure that such subcontract Work or products is protected pending issuance of final certificate for payment and be responsible for correction of defects or Work not performed regardless of whether or not such was apparent when such certificates were issued.

1.8 FINAL PAYMENT

- .1 The contractor must submit application for final payment when Work is completed.
- .2 The Department Representative will, no later than 10 days after receipt of application for final payment, review Work to verify validity of application. The Department Representative will give notification that application is valid or give reasons why it is not valid, no later than 7 days after reviewing Work.
- .3 The Department Representative will issue final certificate for payment when application for final payment is found valid.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

ONE-TIME LUMP SUM PAYMENT (BREAKDOWN)

Description	Amount
1 - Mobilisation/demobilisation	_____ \$
2 - Worksite organisation	_____ \$
3 - Environmental protection measures	_____ \$
4 - Screw piles	_____ \$
5 - Structural connections and fastener	_____ \$
6 - Structural tie bar, turnbuckle and connections	_____ \$
7 - Steel bar grating	_____ \$
8 - Railing	_____ \$
9 - Roofing	_____ \$
10 - Rehabilitation of site, top soil and seeding	_____ \$

Note :

The one-time lump sum price table shall not be submitted with the tender documents, but only when the lowest compliant tenderer is known.

Part 1 General

1.1 DEFINITIONS

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

1.2 REQUIREMENTS

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

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

- .3 Submit Project Schedule to Departmental Representative within 2 working days of receipt of acceptance of Master Plan.

1.4 MAJOR MILESTONES

- .1 Project milestones are essential contract conditions that must be stated and identified in the schedule. The milestones indicated for each phase are not limiting but represent the minimum objectives the Contractor must respect to meet the overall Critical Schedule. The Contractor must complete the indicated milestones before beginning a subsequent phase or by the stated date.
- .2 The Contractor must establish a work schedule that minimally respects the following milestones and deadlines:
 - .1 Contract award: no later than five (5) working days following the contract award;
 - .2 Submittals of shop drawings: no later than five (5) working days following the contract award;
 - .3 Job site delivery of the sawn lumber : no later than forty (40) working days following the contract award;
 - .4 Job site delivery of fabricate metal : no later than forty (40) working days following the contract award;
 - .5 Certificate of substantial performance : no later than may 13th, 2022.

1.5 MASTER PLAN

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

1.6 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Mobilization
 - .2 Work Phases
 - .1 Site preparation including required records and the positioning of the pile
 - .2 Installation of the piles
 - .3 Structure
 - .4 Stairs
 - .5 Railings and Architectural Elements
 - .6 Roof
 - .7 Cleaning
 - .3 Certificate of substantial performance
 - .4 Demobilization

- .1 The end date of the demobilization must be inserted as a "deadline".
- .5 Certificate of completion

1.7 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.
- .3 Submit to the Departmental Representative, on each Friday, a forecast of upcoming work for the next week.

1.8 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

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 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed 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 extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental. This 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 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 affected adjacent Work are co-ordinated.
- .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 review.
- .10 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "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.
- ~~.2~~ Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work.
 - .1 Make references to specifications and project drawings.
- .3 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.
- .4 The documents submitted must bear or indicate the following:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of :
 - .1 Subcontractor.
 - .2 Supplier.

.3 Manufacturer.

- .5 Submit an electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .6 Submit an electronic copy of the documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .7 Supplement standard information to provide details applicable to project.
- .8 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, installation of Work may proceed. If 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.

1.3 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic colour digital photography, standard resolution as directed by Departmental Representative.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Frequency of photographic documentation: weekly or as directed by Departmental Representative.
 - .1 Upon completion of Work, but before the works are concealed as directed by Departmental Representative.

1.4 DAILY PROGRESS REPORT

- .1 Submit an electronic copy of the daily progress report as directed by Departmental Representative.
- .2 Les documents soumis doivent porter ou indiquer ce qui suit :
 - .1 Project identification.
 - .2 Date of report.
 - .3 Activities executed by the Contractor.
 - .4 Activities executed by the testing laboratory.
 - .5 Personnel and equipment on the work site.
 - .6 Unusual conditions, incident or accident, accidental spill and visitors.
- .3 Frequency of progress report: daily or as directed by Departmental Representative.

1.5 ENVIRONMENTAL MONITORING FORM

- .1 Submit an electronic copy of the environmental monitoring form as directed by Departmental Representative.
- .2 Frequency of environmental monitoring report: weekly or as directed by Departmental Representative.
- .3 See Section 01 35 43 *Environmental Procedures* for all specifics and requirements for environmental monitoring form.
- .4

Part 2	Products
2.1	NOT USED
.1	Not Used.
Part 3	Execution
3.1	NOT USED
.1	Not Used.

END OF SECTION

Partie 1 General

1.1 RELATED REQUIREMENTS

- .1 Not used

1.2 REFERENCES

- .1 Province of Québec
 - .1 Loi sur la santé et la sécurité du travail L.R.Q., c. S-2.1 (Act respecting occupational health and safety).
 - .2 Code de sécurité pour les travaux de construction L.R.Q., c. S-2.1, r.4 (Safety code for the construction industry).

1.3 ACTION AND 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 5 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 Submit copies of Contractor's authorized representative's construction site health and safety inspection reports to Departmental representative, once a week.
- .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 accident.
- .8 Submit to Departmental representative WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittals. Contractor must also keep one copy of these documents on the construction 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 *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 Engineer's plans and certificates of compliance: Contractor must submit to the Departmental representative and to the *Commission des normes, de l'équité, de la santé et de la sécurité du travail* (CNESST) 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.

1.4 FILING OF NOTICE OF CONSTRUCTION SITE OPENING

- .1 Notice of construction site opening shall be submitted to the CNESST before work begins. A copy of such notice and acknowledgment of receipt from the CNESST shall be submitted to Departmental representative.

At the completion of all the work, a notice of construction site closing shall be submitted to the CNESST, with a copy to Departmental representative.

- .2 The Contractor shall assume the role of being the Principal Contractor in the limits of the construction site and elsewhere where he must execute work within the framework of this project. The Contractor shall recognize the responsibility of being the Principal Contractor of the project and identify himself as such in the notice of the construction site opening he provides to the 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.

1.5 HAZARD ASSESSMENT

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

1.6 MEETINGS

- .1 Contractor's representative with decision power must attend any meetings at which construction site safety and health issues are to be discussed.
- .2 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.

1.7 REGULATORY REQUIREMENTS

- .1 Do the 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*.

1.8 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.

1.9 RESPONSIBILITIES

- .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.

1.10 WORK PERFORMED BY EXTERNAL CONTRACTORS

- .1 Not used

1.11 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 PUBLIC";
- .9 training requirements;
- .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 least 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.
- .14 If available the Departmental representative will provide the evacuation procedures to the Contractor who shall then coordinate the construction site procedure with that of the site and submit it 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 elaborate 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 can at all times, if he suspects a malfunction or the risk of an accident, order the immediate stop of any piece of equipment and require an inspection by a specialist of his choice.
- .9 The Departmental representative must be consulted for the location of storing gas cylinders and tanks on the construction site.

1.12 RISKS INHERENT TO THE WORKSITE

- .1 In addition to the risks related to the tasks to be carried out, 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 executed.

At the worksite there is in particular the presence of the following:

- .1 body of water close by;
 - .2 height works
- .2 The Contractor shall process to a risk assessment of the site to validate this information and see if other risks are present on the site. He must include in its prevention program all risks that have been identified.

1.13 SPECIFIC REQUIREMENTS FOR THE HEALTH AND SAFETY OF OCCUPANTS AND PUBLIC

- .1 The worksite is occupied by employees and/or the public during the following times: for the entire duration of the work. The Contractor shall consider the following specific requirements for the protection of employees and / or the public:
- .1 the proper perimeter of the construction site
 - .2 crossed circulation with occupancy during delivery during busy hours
- .2 These requirements must be included in the Contractor's site-specific safety plan as well as any other measures provided by the Contractor to protect the health and safety of employees and / or the public on the site.

1.14 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 of 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. Then the Contractor must do the necessary modifications to the prevention program or apply the security measures required in order to resume work.

1.15 PERSON IN CHARGE OF 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 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.
- .2 The safety officer's certificate shall be submitted to the Departmental representative before the start of the work.
- .3 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.

1.16 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 the CNESST.

1.17 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 cessation of work if the Contractor does not make the corrections needed to conditions deemed non-compliant in matters pertaining to health and safety. Without limiting the scope of the preceding articles, the Departmental representative may order cessation of work if, in his view, there is any hazard or threat to the safety or health of construction site personnel or the public or to the environment.

1.18 PREVENTION OF VIOLENCE

- .1 Health and safety management of Public Works and Government Services 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 behaviors will receive a warning and/or could be definitely expelled from the construction site by the Departmental representative.

1.19 BLASTING

- .1 Not used

1.20 POWDER ACTUATED DEVICE

- .1 Not used

1.21 USE OF PUBLIC ROADS

- .1 Where it is necessary to encroach on a public road for operational reasons or to ensure the security of the workers, the occupants or the public (for example: the use of scaffolding, cranes, excavation work, etc.), the Contractor shall obtain at his own expense any authorizations and permits required by the competent authority.
- .2 The Contractor shall install at his own expense any signage, barricades or other devices needed to ensure the safety and security of the public and the Contractor's own facilities.
- .3 The Contractor shall use signalers when transporting material and materials in the presence of occupants.

1.22 LOCKOUT-TAGOUT

- .1 Not used

1.23 ELECTRICAL WORK

- .1 Not used

1.24 ASBESTOS EXPOSURE

- .1 Not used

1.25 FUNGAL CONTAMINATION

- .1 Not used

1.26 EXPOSURE TO SILICA

- .1 Not used

1.27 SANDBLASTING

- .1 Not used

1.28 LEAD-BASE PAINT REMOVAL

- .1 Not used

1.29 EXPOSURE TO ANIMAL'S FECAL DROPPINGS

- .1 Not used

1.30 RESPIRATORY PROTECTION

- .1 Contractor must ensure that all workers who must wear a respirator as part of their duties have received training for that purpose as well as fit testing of their respirator, in accordance with CSA Standard Z94.4 Selection, use and care of respirators. Submit the certificates of the fit testings to the Departmental representative on demand.

1.31 FALL PROTECTION

- .1 Plan and organize work so as to eliminate the risk of fall at the source or ensure collective protection, thereby minimizing the use of personal protective equipment. When personal fall protection is required, workers must use a safety harness that complies with CSA standard CAN/CSA Z-259.10 M90. A safety belt must not be used as fall protection.
- .2 Every person using an elevating platform (scissors, telescopic mast, articulated mast, rotative mast, etc.) must have a training regarding this equipment.
- .3 The use of a safety harness is mandatory for all elevating platforms with telescopic, articulate or rotative mast.
- .4 Define the limits of the danger zone around each elevating platform.
- .5 All openings in a floor or roof must be surrounded by a guardrail or provided with a cover fixed to the floor able to withstand the loads to which it could be exposed, regardless of the size of the opening and the height of the fall it represents.
- .6 Everyone who works within two metres from a fall hazard of three metres or more must use a safety harness in accordance with the requirements of the regulation, unless there is a guardrail or another device offering an equivalent safety.
- .7 Despite the requirements of the regulation, the Departmental representative may require the installation of a guardrail or the use of a safety harness for specific situations presenting a risk of fall less than three metres.

1.32 SCAFFOLDINGS

In addition to the requirements of the *Code de sécurité pour les travaux de construction* (Safety code for the construction industry), the Contractor who uses scaffoldings must respect the following requirements:

Foundation

- .1 Scaffoldings shall be installed on a solid foundation so that it does not slip or rock.
- .2 Contractors wishing to install scaffoldings on a roof, overhang, canopy or awning shall submit their calculations and loads, as well as plans signed and sealed by an engineer to the Departmental representative and obtain his authorization before beginning installation.

Assembly, bracing and mooring

- .1 All scaffoldings shall be assembled, braced and moored in accordance with the manufacturer's instructions and the provisions of the *Code de sécurité pour les travaux de construction* (Safety code for the construction industry).
- .2 Where a situation requires the removal of part of the scaffoldings (e.g., crosspieces), the Contractor shall submit to the Departmental representative an assembly procedure signed and sealed by an engineer certifying that the scaffolding assembled in that manner will allow the work to be done safely given the loads to which it will be subject.
- .3 For scaffoldings where the span between two supports is greater than three metres, the Contractor shall provide the Departmental representative an assembly plan signed and sealed by an engineer.

Protection against falls during assembly

- .1 Workers exposed to the risk of falling more than three metres shall be protected against falls at all times during assembly.

Platforms

- .1 Scaffolding platforms shall be designed and installed in accordance with the provisions of the *Code de sécurité pour les travaux de construction* (Safety code for the construction industry).
- .2 If planks are used, they shall be approved and stamped in accordance with section 3.9.8 of the *Code de sécurité pour les travaux de construction* (Safety code for the construction industry)
- .3 Scaffoldings of four sections (or six metres) high or more shall have a full platform covering the entire surface between the putlogs every three metres high or fraction thereof, and the components of that platform shall not be moved at any time to create an intermediate landing.

Guardrails

- .1 A guardrail shall be installed on every landing.
- .2 Cross braces shall not be considered as guardrails.
- .3 If the platforms are not covering the entire surface between the putlogs, the guardrail must be installed just above the edge of the platform so that there is no empty horizontal space between the platform and the guardrail.

- .4 Where scaffoldings has four sections (or six metres) high or more and full platforms are required, the guardrails shall be installed on each landing at the start of work and shall remain in place until the work is completed.

Access

- .1 The Contractor shall ensure that access to the scaffoldings does not compromise worker safety.
- .2 Where the platforms of the scaffoldings are comprised of planks, ladders shall be installed in such a way that planks extending beyond the platform do not block the way up or down.
- .3 Notwithstanding the provisions of the Code de sécurité pour les travaux de construction (Safety code for the construction industry), stairs shall be installed on all scaffoldings that have six or more rows of uprights or is six sections (or nine metres) high or higher.

Protection of the public and occupants

- .1 When scaffoldings are installed in a zone accessible to the public, the Contractor shall take the necessary measures to prevent the public from having access to them and, if applicable, to the work or storage area located in the vicinity of these scaffolding.
- .2 Contractor must install covered walkways, nets or other similar devices to protect workers, the public and the occupants against falling objects. The means of protection must be approved by the Departmental representative.

Engineering plans

- .1 In addition to those required by the Code de sécurité pour les travaux de construction (Safety code for the construction industry), the Departmental representative reserves the right to require engineering plans for other types or configurations of scaffoldings.
- .2 A plan signed and sealed by an engineer is required for all scaffoldings that will be covered with a canvas, a tarpaulin or any other material that has wind resistance.
- .3 A certificate of conformity signed by an engineer is required in all cases where an engineering plan is required for the installation and this, before anybody uses the facility. A copy of these documents must be available on the construction site at all times.

1.33 CONFINED SPACES

- .1 Not used

1.34 EXCAVATION WORK

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 the digging of trenches or excavations must respect the following requirements:

1. Fill out the following form and submit it to the Departmental representative before beginning to excavation work.
2. Submit to the Departmental representative, as appropriate, the following documents:
 - .1 plans and specifications, signed and sealed by an engineer, of the shoring needed to be installed for the excavation work; or
 - .2 engineer's advice specifying the wall angles of the trench or excavation.



Excavation guidelines

N° _____ of _____

This directive is provided as an example by the Commission de la santé et de la sécurité du travail (CSST). It contains the main instructions that the employer should give to the person responsible for the work on the site and to the operator of the earth-moving machine.

Company name	
Project name	Project no.
Address of the site	Construction start date

Field survey

Chaining or axes: from _____ to _____ Attached plan Plan no. : _____

Working method to use

While making sure the excavation walls do not pose the risk of landslide

- dig and shore according to the plans and specifications of the engineer ;
- dig and shore using a trench box ;
- dig without shoring as long as one of the following conditions is respected:
 - rock is sound;
 - no worker goes down in the trench or excavation;
 - the walls are dug according to the engineer's advice.

Dimensions of excavation (Dig according to the following profile.)

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

	Minimum	Maximum
H Depth		
Wb Width at bottom		
Width at top		

Safety measures

Deposit the materials at a distance of at least 1.2 metre (4 feet) from top of walls.
 Do not allowed any vehicle to come closer than 3 metres (10 feet) from top of walls.

- Respect the engineer's plan concerning work in the proximity of an existing facility.
- Follow the location plan to locate the underground infrastructures.
- Install signaling devices prescribed in the traffic plan (barriers, visual references, etc.).
- Assign a flag person or more to control the flow of traffic.
- Respect the procedure prescribes for work near power lines.
- Provide protection devices for the workers, such as concrete crash barriers.

Name	Occupation	
Signature	Date	Telephone no.
Directive submitted		
<input type="checkbox"/> to the responsible of the work on the site <input type="checkbox"/> to the operator of the earth-moving machine		

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1.35 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 article.
- .2 The hoisting plan must be signed and sealed by an engineer for the following lifting operations:
 - .1 lifting of concrete panels;
 - .2 lifting mechanical/electrical equipment on a roof or on the floor of a building;
 - .3 lifting of loads encroaching on the public road;
 - .4 lifting large dimensions or very heavy loads;
 - .5 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 security 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 SPEC NOTE: For the trajectory of loads above occupied buildings, it's of primary importance to know the trajectory of the load because your project could be stopped by Labour Canada in order to guarantee the safety of the occupants of the building.
- .5 Upon the beginning of 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.
- .6 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.
- .7 The entire lifting area shall be marked off to prevent the entry of non-authorized persons.
- .8 The Contractor shall carefully inspect all of the slings and lifting accessories and make sure that those in poor condition are destroyed and scrapped.
- .9 Compressed-gas cylinders shall be lifted with a basket specially designed for this purpose.

MINIMUM CONTENT OF HOISTING PLAN

- .1 Sketch indicating at a minimum, the location of the crane, the surrounding facilities, the zone covered by the hoisting operations, the pedestrian's pathways and vehicular routes, the security 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 Verification confirmation of hoisting equipment
- .17 Identification of the crane operator and the person responsible for the hoisting operations with date and signatures

1.36 HOT WORK

Hot work means any work where a flame is used or a source of ignition may be produced, i.e., riveting, welding, cutting, grinding, burning, heating, etc.

1. Before the beginning of each shift of work and for each sector, the Contractor must obtain a "Hot Work Permit" emitted by the person responsible for the site.
2. A working portable fire extinguisher suitable to the fire risk shall be available and easily accessible within a 5 m radius from any flame, spark source or intense heat.
3. The Contractor must appoint an individual to do continuous monitoring of the fire risks for a period of one (1) hour after the end of the shift of hot work. This individual shall sign the section for this purpose on the permit and give it to the person in charge of the construction site after the one-hour period.
4. When the hot work is done in areas where there is combustible materials or where the walls, ceilings or floors are made of or covered with combustible materials, a final inspection of the work area must be scheduled four (4) hours after the work has finished. Unless specified otherwise by the Departmental representative, the Contractor must assign a person to carry out this monitoring.

Welding and cutting

In addition to the requirements prescribed in the preceding paragraphs, the Contractor must respect the following requirements:

1. Welding and cutting work must be carried out in accordance with the requirements of the *Code de Sécurité pour les travaux de construction, S-2.1, r.4* (Safety code for the construction industry) and CSA standard W117.2, Safety in Cutting, Welding and Allied Processes.
2. Air extraction system with filters must be used for all welding and cutting work performed inside.
3. Stop all activities producing flammable or combustible gas, vapours or dust in the vicinity of the welding or cutting work.
4. Store all compressed gas cylinder on a fireproof fabric and make sure that the room is well ventilated.
5. Store all oxygen cylinders more than 6 metres from a flammable gas cylinder (ex: acetylene) or a combustible such as oil or grease, unless the oxygen cylinder is separated from it by a wall made of non-combustible material as mentioned in the article 3.13.4 of the *Code de sécurité pour les travaux de construction, S-2, r. 6* (Safety code for the construction industry)
6. Store the cylinders far from all heat sources.
7. Not to store the cylinders close to the staircases, exits, corridors and elevators.
8. Do not put acetylene in contact with metals such as silver, mercury, copper and alloys of brass having more than 65% copper, to avoid the risk of an explosive reaction.
9. Check that welding equipment with electric arc has the necessary tension and are grounded.
10. Ensure that the conducting wires of the electric welding equipment are not damaged.
11. Place the welding equipment on a flat ground away from the bad weather.
12. Install fireproof canvas when the welding work is done in a superposition and where there is the risk of falling sparks.
13. Move away or protect the combustible materials which are closer than 15 metres from the welding work.
14. Prohibition to weld or cut any closed container.
15. Do not perform any cutting, welding or work with a naked flame on a container, a tank, a pipe or other container containing a flammable or explosive substance unless:
 - a. they have been cleaned and air samples indicating that work can be done without danger has been taken; and
 - b. provisions to ensure the safety of the workers have been made.

1.37 STEEL STRUCTURE ERECTION OR DISMANTLING WORK

- .1 Not used

1.38 WORK NEAR BODIES OF WATER

1. For all work done near a body of water (such as work above water, work on a wharf, work on the edge of a watercourse, etc.), the Contractor must respect the requirement of the following paragraphs in addition to those in article 2.10.13 du *Code de sécurité pour les travaux de construction* (Safety code for the Construction Industry).
2. The Contractor must plan his work in a way to implement safety measures to prevent any worker from falling in the water. The use of these measures should be favoured over the wearing of a life jacket.
3. Submit the following documents to the Departmental representative before the beginning of the work:
 - .1 description of the body of water;
 - .2 description of the work done next to this body of water;

- .3 plan of transportation on water adapted to the work and to the characteristics of the body of water;
- .4 rescue plan adapted to the work and to the characteristics of the body of water;

Each of the document listed above must contain at a minimum the information required in section 11 of the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety code for the Construction Industry).

If there is the possibility that all or part of the work can be done during the winter, the safety measures included in the documents required above must be adapted accordingly.

- 4. The Contractor must submit to the Departmental representative the certificate of training required in article 11.2 du *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety code for the Construction Industry) for the following individuals:
 - .1 the person assigned to prepare the documents required in the preceding paragraph; and
 - .2 each person responsible for the transport or rescue operations
- 5. If the rescue plan stipulates the use of a vessel, the Contractor must submit to Departmental representative the competency card or certificate for the individuals in the rescue team for his work, issued by Transport Canada.
- 6. The Contractor must include in his weekly inspection checklist the devices required in the articles 11.4 and 11.5 du *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety code for the Construction Industry).
- 7. Ensure that a rescue vessel moored and in the water is available at each place where a worker may fall in the water. However, a vessel may serve more than one workplace on the same construction site provided the distance between any of these workplaces and the vessel is less than 30 m.
- 8. Where the construction site is a wharf, a pier, a quay or any similar structure, a ladder with at least two (2) rungs below the surface of the water shall be installed on the front of the structure every 60 m.

1.39 INTERIOR USE OF INTERNAL COMBUSTION ENGINES

- .1 Not used

1.40 TEMPORARY HEATING

- .1 Not used

1.41 WORK NEAR OVERHEAD POWER LINES

- .1 Not used

1.42 DIVING OPERATIONS

- .1 Not used

1.43 HEALTH AND SAFETY SUBORDINATION AGREEMENT

- .1 Not used

1.44 LIFE LINE

- .1 Where work at a height requires a lifeline, the Contractor shall provide the anchorage points and all necessary equipment for the execution of the work.
- .2 The anchorage plan as well as the working method must be signed and sealed by an engineer who is a member of the Ordre des ingénieurs du Québec.
- .3 Certification of equipment and certification of workers shall be submitted to the Departmental Representative prior to commencement of work.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Migratory Birds Convention Act and the Migratory Birds Regulations
- .2 Canada Wildlife Act and the Wildlife Area Regulations
- .3 Species at Risk Act (SARA)
- .4 Canadian Environmental Assessment Act (2012)
- .5 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .1 EPA 832/R-92-005-92 , Storm Water Management for Construction Activities, Chapter 3.
 - .2 EPA General Construction Permit (GCP) 2012 .

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 environmental disruption during construction.
- .3 Invasive alien species: A species that is alien to the ecosystem in which it is found, but capable of reproducing and may have adverse effects on the economy, the environment or human health (e.g., phragmite). In addition to plants, this type of pest includes certain animals, fungi and microorganisms that also pose a threat to biodiversity.
- .4 Species at risk: Wildlife species either fauna or flora which is legally protected under la Loi sur la conservation et la mise en valeur de la faune (Québec) and/or the Species at risk Act (Canada).

1.3 CONTRACTOR OBLIGATIONS

- .1 ECCC holds environmental permits for the planned work. The Contractor shall comply with the requirements of the conditions associated with each environmental permit :
 - .1 Temporary permit subjected to Canada Wildlife Act (R.S.C., 1985, c. W-9) and issued under Article 4 of Wildlife Area Regulations (C.R.C., c. 1609);
- .2 The work must be completed to the satisfaction of the Departmental Representative regarding standards and environmental regulations. The Contractor shall comply with the environmental guidelines of this analysis and this must include the costs associated with these requirements.
- .3 The Contractor must ensure that his work complies with:
 - .1 The laws and legislation of the municipal environmental provincial and federal authorities;

- .2 The requirements established in this specification;
 - .3 The requirements associated with each of the conditions of the environmental permits;
 - .4 To the other standards and guidelines that may be established by the Departmental Representative.
- .4 In the event of work not planned and stated in the environmental permits, the Contractor must, in addition to notifying and obtaining the consent of the of Departmental Representative, obtain from organizations concerned authorizations and permissions necessary to complete his work. Costs and delays related to compliance and enforcement of environmental requirements contained in these licenses and permits will be provided and borne entirely by the Contractor.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00- Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with 01 35 29.06- Health and Safety Requirements.
- .3 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative .
- .4 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.
- .5 Address topics at level of detail commensurate with environmental issues and required construction tasks.
- .6 Include in Environmental Protection Plan:
 - .1 Name of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.
 - .1 A plan of the work area showing the activities planned in each part of the work area and indicating the areas of restricted use and the prohibited areas of use. This plan shall include measures to mark the boundaries of usable areas and methods of protection of the elements within authorized work areas to be preserved.
 - .3 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
 - .4 A cutting and plant protection plan. This plan must be approved by the Departmental Representative prior to the commencement of site clearing.
 - .5 Drawings showing the location of temporary excavations or site trails in embankments, watercourse crossings, materials, constructions, sanitary

installations, deposits of surplus materials or contaminated materials; The drawings illustrating the methods that will be used to control runoff and to confine the materials to the site.

- .6 Spill Control Plan to include procedures, instructions, and reports to be used in the event of unforeseen spill of regulated substance.
- .7 Non-hazardous and hazardous solid waste disposal methods and locations for solid waste disposal including clearing debris.
- .8 Detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
- .9 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.
- .10 Imported material used on site must come from authorized borrow pits and quarries, be clean and free of invasive species and contaminant

1.5 SITE PREPARATION AND MOBILIZATION

- .1 Work and storage areas delineation must be approved by the Departmental Representative before construction begins. The contractor must ensure that the limits are visible throughout the work.
- .2 If the site facilities are located within 30 meters of a lake, watercourse or wetland:
 - .1 These facilities must be located as far away as possible from watercourses or wetlands.
 - .2 Limit volumes of hazardous materials and hydrocarbon on site.
 - .3 Hazardous materials and hydrocarbons may be stored on site in a impermeable container with a minimum volume equivalent to 110% of the MD or hydrocarbon content of the device or the capacity of the tank or container.
 - .4 The container must be protected from the rain and not accumulate precipitation.
 - .5 In the event of a bad weather or sudden flood, hazardous materials and hydrocarbons must be removed from the site.
- .3 Ensure that there will be no storage of materials, no machinery traffic, no trenching or other unauthorized intervention that may damage or modify lakes and intermittent or permanent watercourses, their respective shorelines and flood plains; or adjacent or isolated wetlands (ponds, marshes, swamps or peatlands).
- .4 All stationary equipment (generators, fuel tanks, etc.) must be placed on a waterproof and absorbent membrane to prevent any contamination of the soil by leaks or accidental oil spills.
- .5 Access to the various sites will be limited to the use of the existing trail
- .6 Site facilities must also meet the requirements of Section 01 52 00 - Construction Site Facilities.

1.6 FIRES

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

1.7 DRAINAGE

- .1 Excavation and soil reclamation should be done during good weather, with no rain.
- .2 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .3 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .4 Excavated soil must be directly transported off-site or stored on waterproof tarpaulins otherwise transported off-site. If soils are stored on site, limit storage time and protect them from the weather, if any.
- .5 Materials imported to the site and put in place during construction must be clean and free from invasive alien species.

1.8 EROSION AND SEDIMENT CONTROL

- .1 Provide Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls provided to prevent soil loss from stormwater runoff or wind erosion, and the entrainment of that soil over properties and pathways. Ensure plan includes monitoring and reporting requirements to assure that control measures are in compliance federal, provincial and municipal regulations.
 - .1 The Erosion and Sediment Control Plan shall include sediment barriers to prevent runoff from carrying fine particulates into the water of the marsh or Mado Creek during any period of time.
 - .2 Sediment barrier must be installed above the high-water mark.
 - .3 The Erosion and Sediment Control Plan shall be approved by the Departmental Representative before construction begins.
- .2 Inspect and maintain maintenance and repair if necessary, during the whole construction period.
- .3 The Contractor must maintain, or add if necessary, temporary environmental measures during evenings and weekends to avoid any risk of erosion outside working hours.
- .4 Remove erosion control measures and timely recondition and stabilize the surfaces disturbed by this work.
- .5 Work likely to expose the soil must be carried out under appropriate weather (low wind, sunshine, etc.) in order to minimize the dispersion of soil particles.

1.9 SITE CLEARING AND PLANT PROTECTION

- .1 Stripping, tree pruning and cutting should be kept to a minimum. Only trees that interfere with the work can be felled. Trees to be felled must be identified and authorized by the Departmental Representative.
- .2 Restricting period
 - .1 Carry out forest clearing work outside nesting period, which is between April 10th and August 31st for most species in southern Quebec. Bird, eggs and nests

are legally protected. Working during nesting period implies that nests and nestlings must be protected until they have left the nest.

- .3 Ensure the protection of trees and plants on the site and on adjacent properties, as indicated.
 - .1 Protect trees and shrubs adjacent to construction sites, storage areas and trucking lanes.
 - .2 The canopy of butternut trees will be demarcated and protected with rigid and visible markers. The protective radius will have to be respected for the duration of the work.
 - .3 No butternut will be cut or affected by the work.
 - .4 Southern wildrice (*Zizania aquatica*) colonies will be demarcated and no work or passage of machinery will be permitted.
- .4 If the Contractor damages vegetation outside of the intended easement, it must be replaced at its own expense.
- .5 The felling of trees and shrubs must be carried out in accordance with Section 31 11 00 - Clearing and wiping.
- .6 Remove trees only in areas designated in the contractual documents and previously authorized by the Department's Representative.
- .7 Felling should be done so as not to damage the surrounding trees and shrubs to be conserved.
- .8 During excavation and earthmoving, protect the roots of the designated trees to the drip line so that they are not moved or damaged.
 - .1 Avoid circulating and unloading or storing materials unnecessarily over the root zone of protected trees.
- .9 Preserve trees in the Mado Creek banks.

1.10 COMMON REED CONTROL

- .1 Special procedures must be implemented in order to avoid the propagation of the common reed.
 - .1 Avoid walking on foot or with machinery in common reed.
 - .2 Contractor shall clean all machinery that will be brought on the site so that it is free plant fragments
 - .3 Contractor shall clean all machinery before leaving the construction area.
 - .4 Brush clothing and all equipment on site before leaving work site.

1.11 WORK ADJACENT TO WATERWAYS

- .1 This section applies:
 - .1 At the shoreline and banks of Mado Creek and the marsh of Digue-aux-Aigrettes (area extending from the high water mark to the center of the body of water);

- .2 Throughout the duration of the work, the Contractor must ensure that every person under his responsibility takes all necessary measures to protect aquatic, wetland and riparian environments.
- .3 Work in the riparian strip or in the water must be done in the presence of the Departmental Representative.
- .4 Any temporary installation for the movement of machinery near watercourses shall be designed and constructed to minimize erosion, while complying with the requirements of Section 01 52 00 - Construction Site Facilities.
- .5 Measures must be in place to contain and recover debris before it reaches the marsh or creek. Pay attention to limit the movement of particles in the water when removing the facilities.
- .6 No material can be piled in the aquatic environment and on the banks.
- .7 No borrow material to be collected from the marsh nor the creek.
- .8 Ensure that any material to be excavated and exported outside aquatic, wetland and riparian environments is replaced by a material in accordance with the contract documents and approved by the Departmental Representative.
- .9 Arrange for excavated material to be free of contamination, including topsoil contamination, so that when they are put back in place, they do not contaminate any body of water.

1.12 FAUNA PROTECTION

- .1 The work area is a suitable habitat for Blanding's turtle, a protected species at risk. Third party preparatory work for the protection of the species will have been done prior construction begins.
 - .1 The Contractor must ensure, at all times, to avoid traveling within the turtle nesting area identified near the site.
 - .2 In the event of a fortuitous discovery of a nest with young turtles, the Contractor must stop the work and inform the Departmental Representative for an emergency relocation protocol to be implemented.
 - .3 Do not touch or handle young turtles.
 - .4 When the machinery is moving outside the work area, it will always be accompanied by a signalman to ensure that no turtles cross the trail at this time. In the presence of a turtle, the machinery will have to wait. The signalman will have to document the presence of turtles.
- .2 For any site activity after the snow has melted, during the period between March 1st and May 20th 2022, the contractor must put in place an exclusion fence (sediment barrier, the lower part of which is backfilled). This barrier must be installed at the outer perimeter of the site fence as well as on both side of the access road located on the dike, to the satisfaction of the representative of the ministry.
- .3 To ensure the safety of workers, visitors and animals, stop traffic or machinery when wild animals are present on the site.
- .4 Provide a safe escape route for the animal and keep a safe distance.

- .5 Observe at a distance, without approach, to avoid any disturbance or perception of harassment.
- .6 Contact the Canadian Wildlife Service – Quebec Region of Environment and Climate Change Canada for advice or support as needed.

1.13 POLLUTION CONTROL

- .1 It is prohibited to discharge waste materials into the environment in any way.
- .2 Focus on the use of products with the least adverse effects on the environment and human health.
- .3 Maintain temporary erosion and pollution control features installed under this Contract.
- .4 Control emissions from equipment in accordance with local authorities' emission requirements.
- .5 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
- .6 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- .7 Cover the waste materials with a geotextile or geogrid to prevent the wind from lifting dust or debris.
- .8 Recycling and reuse of residues and unused materials should be promoted.
- .9 Accumulation of solid waste on site will be avoided. The waste materials will be stored in appropriate containers and will be evacuated frequently to a disposal site authorized by the MELCC. Solid waste and dry materials will be managed in accordance with the requirements of the Règlement sur l'enfouissement et l'incinération de matières résiduelles.
- .10 All necessary measures shall be taken to minimize the suspension and transport of fine particles. Any accidental spill of concrete will be picked up and disposed. Concrete residues (dry or liquid materials) will be contained and placed in an authorized site.
- .11 It is prohibited to discharge waste materials into the environment in any way.

1.14 MACHINERY USE

- .1 Prior to transporting machinery and equipment to the work site, they must have been properly cleaned to minimize the risk of hydrocarbon contamination of the site. Excess oil or grease should be removed.
- .2 The equipment cleaning site must be more than 30 m from any wet or aquatic environment.
- .3 Use the smallest equipment possible to undertake the works.
- .4 Machinery and equipment used within 15 m of the marsh must be equipped with hydraulic systems using biodegradable vegetable oil and be in good condition.
- .5 Refueling and maintenance of machinery

- .1 A preliminary then weekly inspection of the machinery and equipment used will be carried out to ensure that they are in good condition, clean and free from any leakage of oil or other contaminants. Depending on the equipment and its use, the inspection should be done daily or weekly. Their exhaust and emission systems will also be inspected and repaired as needed.
- .2 Use machinery and equipment that is well maintained and in clean and good conditions and exempt of leaks. Repair immediately or exclude from the site.
- .3 The maintenance, refueling and cleaning of machinery and equipment containing petroleum products must be carried out on a site designed for this purpose where there is no risk of contamination of soil surface and groundwater. The surface of this site must be impermeable and have the capacity to contain all hydrocarbons in the event of spills or leaks. All these activities must be carried out under the constant supervision of the Contractor.
- .4 Place machinery on impermeable mats before refueling or use containment device to contain any spills.
- .5 Set up a sludge recovery bed at the exit of the site.
- .6 Access roads used by transport vehicles will be cleaned throughout the duration of the work to remove any accumulations of dust and debris.
- .7 Maintenance and refueling must be done at the location designated by the Departmental Representative in accordance with Section 01 52 00 - Construction Site Facilities. When refueling, the Contractor must take all necessary precautions to prevent accidental spills, regardless of the size of the spill.
- .6 It is forbidden to leave isolated machinery or gasoline equipment in a watercourse, or within 15 m of it, during the hours of closure of the site unless it is on an impermeable surface.
- .7 The Contractor is required to:
 - .1 Avoid idling any vehicle, equipment and machinery when not in use.
 - .2 Repair without delay equipment and machinery that produces excessive gas emissions, visible in the exhaust.
 - .3 Maintain the equipment's antipollution system in good condition.
- .8 The Contractor shall control noise levels from the site by the following measures:
 - .1 Noisy equipment must be equipped with silencers or a noise-canceling device that is functional at all times. The good condition of each of these equipments will be checked.
 - .2 Avoid slamming of rear panels.
 - .3 Promote the use of equipment generating a low level of noise / vibration (eg hydraulic equipment).
- .9 The Contractor is required to comply with the municipality's requirements for noise protection.
- .10 Noise levels must be respected the MELCC noise guidelines (for construction work):
 - .1 between 7h and 19h: 55 dBA LAr 12h, or the baseline noise level if it is higher.
 - .2 between 19h and 7h: 45 dBA LAr 1h, or the baseline noise level if it is higher.

- .11 It is forbidden to drive with the machine outside the working identity identified in the contract documents.

1.15 HAZARDOUS MATERIAL AND HYDROCARBON MANAGEMENT

- .1 Good practices must be adopted to prevent the release of oil and other hazardous materials into water from machinery or equipment.
- .2 Petroleum products and hazardous materials must be stored, handled and used with care on a stable and impervious surface which is inaccessible after construction hours.
- .3 Containment tanks (capacity of 125% of tank volume or equipment) will be used for all stationary equipment and machinery located near the marsh. Inspect tanks during rainy periods to prevent overflowing.
- .4 As needed, sample and treat water contained in containment tanks prior to discharge to a watercourse, sewer system or drainage system to meet MELCC criteria for surface water quality (protection of aquatic life - acute effect) and CMM regulation number 2008-47. Contractor to obtain authorisation from the Departmental Representative before discharging anything into the environment.
- .5 Be careful not to dispose of, spill or release organic or inorganic materials or petroleum products and their by-products (antifreeze or solvent) on the ground or in streams.
- .6 Make all arrangements, build all necessary facilities and use appropriate mitigation measures to prevent contamination of lakes and streams with new, used or excavated materials on site.
- .7 An environmental emergency intervention kit must be present on site, close to all work done near watercourse. The Contractor must have several kits on site if he decides to work simultaneously at different locations. Following the use of some or all of the contents of a kit, the Contractor must ensure that the elements used are immediately replaced so that the kit remains complete and ready for use.
- .8 The intervention kit must include containment rod, absorbent rolls, sphagnum moss, and related containers and accessories (gloves, etc.) essential to cover minor spills recovery, storage of soiled equipment and management of contaminated materials. The kit must have enough absorbent rollers to contain the petroleum products contained in the machinery involved.
- .9 As a result of any leakage or spilling of petroleum products (including hydraulic fluids) or other liquid hazardous materials, regardless of the quantity spilled, the Contractor shall immediately take the following actions:
 - .1 secure the premises;
 - .2 extinguish all sources of ignition;
 - .3 stop loss, leakage or spill at source;
 - .4 inform the Departmental Representative;
 - .5 immediately notify Urgence-Environnement at 1-866-694-5454. The telephone number must be posted on the job site and must be entered into the cell phone contacts of the site personnel;

- .6 contain spilled material with appropriate material (granular absorbent, sheet or coil, etc.);
- .7 unless an emergency service indicates another procedure to be followed, the Contractor must put in place absorbent sheets or coils to contain the maximum amount of product. Soiled absorbent material should be collected and temporarily stored in leakproof containers;
- .10 The Contractor is responsible for paying all costs for decontamination and disposal of contaminated soil following a spill or leak of a contaminant directly or indirectly from its activities. The Contractor shall dispose of the contaminated material to a site duly authorized by the MELCC. The available evidence must be sent to the Departmental Representative.
- .11 It is forbidden to mix contaminated soil with clean soil or soil less contaminated in order to have a less restrictive way of disposing of the contaminant.
- .12 Hazardous waste materials will be stored in sealed identified containers and loaded to a temporary and secure storage area located on the site, before disposal in an authorized MELCC site; all in accordance with the Règlement sur les matières dangereuses.
- .13 Used oil must be recovered, placed in barrels, identified and disposed of along with residual hazardous materials to a recycler that has been approved by the MELCC.
- .14 The development and implementation of Spill Contingency Plan will be included in the Environmental Protection Plan. Workers will have access to Managers contacts and alert procedure.

1.16 TREATED WOOD MANAGEMENT

- .1 Contractor shall manage treated wood in accordance with the Guidelines for Treated Wood Management (MDDELCC, 2011).
- .2 All treated wood debris shall be temporarily stored in tight containers prior their disposal in an authorized treatment site.
- .3 Treated wood storage on site shall not extend five (5) working days.
- .4 If possible, the temporary treated wood storage shall be located at more than 30 metres from the marsh, within the site boundary.

1.17 SOIL INTRODUCTION

- .1 If the Contractor intends to use soil from outside for backfilling, earthworks or seeding, he must send soil characterization results to the Departmental Representative to ensure that they are free of contaminants.
 - .1 Soil from different origin must be analyzed and characterized separately.
 - .2 Characterization shall be carried out by a laboratory accredited by the Center of Expertise in Environmental Analysis of Quebec (CEAEQ) for the parameters to be analyzed.
 - .3 All characterization must be carried out in accordance with the Land Characterization Guide as well as the specifications of the MELCC Sampling Guide for Environmental Analyzes;

- .4 The results must make it possible to ensure the conformity of each soil to the use for which it is intended.
- .5 The Contractor must pay the analysis fees.
- .6 Soils may be brought to the site and used for the purpose for which they are intended following the written approval of the Departmental Representative.
- .2 The introduced soils must also be subjected to various tests before their use in the work, according to the indications of the different technical sections of this specification.

1.18 RECLAMATION OF THE WORK AREA

- .1 Proceed as soon as possible and as work progresses to restore disturbed areas (eg, stabilization and revegetation of exposed soil). Restorative elements must ensure that the environment is equivalent to or better than the situation prior to the intervention.
- .2 Site reclamation shall be done in accordance with Section 32 92 19.13 - Mechanical Seeding, to the satisfaction of the Departmental Representative.

1.19 NOTIFICATION

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance 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 for approval by Departmental Representative .
 - .1 Take action only after receipt of written approval 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 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning .
 - .1 Leave Work area clean at end of each day.
- .2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

- .3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning .
- .4 Waste Management: separate waste materials for reuse recycling in accordance with 01 74 19- Waste Management and Disposal .
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.2 SNOW DISPOSAL

- .1 Refer to section 01 74 11 – Cleaning
- .2 Keel all access road free of ice and snow. Snow from the work area shall be disposed by the Contractor in a MELCC authorized site in agreement with the Departemental Representative.
- .3 No snow shall be stored in the marsh.

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Perform the work in compliance with the most recent versions of the current standards.
- .3 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.

1.2 NATIONAL PARKS ACT

- .1 Perform Work in accordance with Canada Wildlife Act and Wildlife Area Regulations when projects are located within boundaries of National Park.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 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 shall pay cost of examination and replacement.

1.2 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. 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 Contractor's 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 the Departmental Representative.

1.6 REPORTS

- .1 Submit 1 copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested manufacturer or fabricator of material being inspected or tested.

1.7 TESTS AND MIX DESIGNS

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

1.8 MOCK-UPS

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

1.9 MILL TESTS

- .1 Submit mill test certificates as requested required of specification Sections.

1.10 EQUIPMENT AND SYSTEMS

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.
- .2 Refer to relevant section for definitive requirements.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 – Submittal procedures.
- .2 Section 01 35 43 – Environmental procedures.
- .3 Section 01 52 00 – Construction facilities.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

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

1.4 DEWATERING

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

1.5 POWER SUPPLY

- .1 Power will not be supplied to the construction site. The Contractor will make arrangements to support his own needs in order to complete the work.

1.6 WATER SUPPLY

- .1 Water will not be supplied to the construction site. The Contractor will make arrangements to support his own needs in order to complete the work.

1.7 TEMPORARY HEATING

- .1 The Contractor will plan the use of temporary heating devices in order to execute 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 RELATED CONNECTIONS

- .1 Canadian Standards Association (CSA International)
 - .1 CSA-0121, Douglas Fir Plywood.
 - .2 CAN/CSA-S269.2, Access Scaffolding for Construction Purposes.
 - .3 CAN/CSA-Z321, Signs and Symbols for the Occupational Environment.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 The work site must be secured by the contractor at the end of every work day.
- .6 Remove from site all such work after use.

1.4 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding ramps ladders swing staging platforms temporary stairs.

1.5 HOISTING

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

1.6 SITE STORAGE/LOADING

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

1.7 CONSTRUCTION PARKING

- .1 An area proximity to the work site will be identified to be used by the Contractor for parking. This area will be in the Digue-aux-aigrettes parking located approximately 150m from the work site.
- .2 No non-essential vehicles will be tolerated on the work site. The contractor must provide an adapted mode of transport between the parking and the site.
- .3 The contractor must at all times reserve 2 parking spaces for the Department Representative.

1.8 USAGE OF TRAVEL LANES

- .1 Install and maintain lanes in order to provide access to the work site.
- .2 The contractor must provide signalers when using travel lanes outside the work area that are accessible to the public.
- .3 Traffic between the Digue-aux-Aigrettes parking area and the work site shall be kept to a minimum to minimize deterioration on the access road.
- .4 No storage will be tolerated on the ravel lanes.

1.9 SECURITY

- .1 Due to the location of the work site, the contractor has the responsibility to ensure the security on the work site.
- .2 Hire reliable security personnel to ensure, after works hours and during holidays, proper surveillance of the work site and the materials, and incur the costs.

1.10 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 A grass road will be available to the Contractor to access the work area. The Contractor shall use it to access the work site and to maintain and maintain it during the work, at his own expense.
- .2 Protect travelling public from damage to person and property.
- .3 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .4 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .5 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .6 Take the necessary steps to remove dust to ensure the safe conduct of activities at all times.

1.11 OFFICE

- .1 Provide a ventilated office, heated to a temperature of 22 degrees Celsius, equipped with lighting fixtures providing a luminance level of 750 lux and sufficient dimensions to allow the holding of site meetings, and provide a table for the spreading of the drawings.
- .2 Provide complete and identified first aid kit and store in an easy access location.

1.12 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.

1.13 SANITARY INSTALLATIONS

- .1 Provide sanitary facilities for workers in accordance with the relevant ordinances and regulations.
- .2 Display the required notices and take all precautions required by the local health authorities. Keep the premises and the area clean.

1.14 CONSTRUCTION SIGNAGE

- .1 No other signs or advertisements, other than warning signs, are permitted on site.
- .2 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .3 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.15 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 REFERENCES

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

1.2 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. The contractor will remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

- .2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.4 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementation products clear of earth or concrete floors, and away from walls.
- .5 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .6 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .7 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.5 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative. Unload, handle and store such products.

1.6 MANUFACTURER'S INSTRUCTIONS

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

1.7 QUALITY OF WORK

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

1.8 CO-ORDINATION

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

1.9 REMEDIAL WORK

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

1.10 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

1.11 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. In specified locations, use hot-dip galvanized steel bolts.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with galvanized steel.

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 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .3 Clear snow and ice from access to work zone, bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Dispose of waste materials and debris off site.
- .7 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .9 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.2 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris other than that caused by Owner or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .8 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .9 Remove dirt and other disfiguration from exterior surfaces.
- .10 Clean and sweep roofs.
- .11 Sweep and wash clean paved areas.

.12 Remove snow and ice from access to the work zone.

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 WASTE MANAGEMENT GOALS

- .1 Accomplish maximum control of solid construction waste.
- .2 Preserve environment and prevent pollution and environment damage

1.2 RELATED REQUIREMENT

- .1 Section 01 33 00 – Submittal procedures.
- .2 Section 01 74 11 – Cleaning.

1.3 DEFINITIONS

- .1 Definitions
 - .1 Class III: non-hazardous waste - construction renovation and demolition waste.
 - .2 Inert Fill: inert waste - exclusively asphalt and concrete.
 - .3 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
 - .4 Recycling: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products. Recycling does not involve combustion, incineration or destruction of waste through heat.
 - .5 Recycling: Operations encompassing the sorting, cleaning, treatment and reconstitution of solid wastes and other discarded materials or materials intended to promote their use in a form different from their original state. Recycling does not include combustion, incineration or thermal destruction of waste.
 - .6 Re-utilization/re-use: Repeated use of a product or material in its original form for the purpose of using it in a different context in the case of re-utilization or in a similar context in the case of re-use. Re-utilization/re-use involves the following:
 - .1 The recovery of products and materials from the rehabilitation or modernization of a structure which can be re-utilized or re-used, before they are demolished, for the purpose of selling them, re-utilizing them, re-using them in the context of the same project, or storing them for subsequent use.
 - .2 Return of products or materials that can be re-used by suppliers, such as pallets and unused products.
 - .7 Recovery: Removal of components and construction materials, load bearing or not, during the deconstruction or dismantling of industrial, commercial or institutional structures, for the purpose of re-utilizing or re-using them or recycling.
 - .8 Separate Condition: refers to waste sorted into individual types.
 - .9 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .2 References
 - .1 Public Works and Government Services Canada (PWGSC)
 - .1 National protocol for the management of non-hazardous solid waste from construction, renovation and demolition work, 2002.

- .2 Sustainable development strategy 2007-2009: Target 2.1, Sustainable use of natural resources.
 - .1 Make sure that under the contract, the resources used for construction or maintenance are used and recovered in a sustainable manner.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.5 SORTING OF WASTE

- .1 Place the containers in locations where it will be easy to deposit waste without hindering the activities of the construction site.
- .2 Waste materials must be collected, handled and stored on the construction site, then removed after sorting.
- .3 Recovered waste materials must be transported to approved and authorized recycling facilities.

1.6 USE OF SITE AND FACILITIES

- .1 Execute the work while disturbing the normal use of the site as little as possible.
- .2 Maintain in effect the safety measures established for the facility. Implement temporary safety measures approved by the Departmental Representative.

1.7 WASTE PROCESSING SITES

- .1 The Contractor is responsible for finding resources regarding waste reclamation, as well as service providers. Recuperated waste must be transported to approved and/or authorized recycling facilities or to material recyclers.

1.8 SOTRAGE, HANDLING AND PROTECTION

- .1 Unless specified otherwise, materials for removal do not become Contractor's property.
- .2 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .3 Separate and store materials produced during dismantling of structures in designated areas.
- .4 Material will be stocked as instructed by the Departmental Representative.
- .5 Prevent contamination of materials to be salvaged and recycled and handle materials 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 waybills for separated materials.
 - .4 The materials re-used/re-utilized on site are considered reclaimed and that they must be included in reports.

1.9 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.

- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers.
- .3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .4 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.10 SCHEDULING

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 CLEANING

- .1 Cleaning during the work: Carry out cleaning activities in compliance with section 01 74 11 - Cleaning.
 - .1 Leave the site clean at the end of each workday.
 - .2 Provide containers on site for the removal of debris and waste materials.
 - .3 Remove the debris and waste materials from the site at the end of each work shift.
 - .4 Take the waste and demolition materials to a site approved by competent authorities.
 - .5 Provide the Departmental Representative with the bills of lading from the waste disposal site regarding the construction material.
- .2 Final cleaning: Remove materials, surplus materials, waste, tools and equipment from the construction site in accordance with section 01 74 11 - Cleaning.
- .3 Waste management: Sort the waste for the purpose of re-utilization/re-use and recycling, in compliance with this section.
 - .1 Remove the recycling bins from the construction site and dispose of the materials at the appropriate facilities.
 - .2 Sort the waste material that will be re-used/re-utilized or recycled at the source and place them at the specified locations.
- .4 Handle waste that cannot be reused, recycled or recuperated in accordance with the relevant codes and regulations in force

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 74 11 – Cleaning.
- .2 Section 01 74 21 – Construction/demolition waste management and disposal.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
 - .1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents:
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request Departmental Representative inspection.
- .2 Departmental Representative Inspection:
 - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
- .3 Completion Tasks: submit written certificates in French that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Equipment and systems: tested, adjusted and balanced and fully operational.
 - .4 Certificates required by Utility companies: submitted.
 - .5 Work: complete and ready for final inspection.
- .4 Final inspection
 - .1 When completion tasks are done, request final inspection of Work by Departmental Representative, and Contractor.
 - .2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.
- .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
- .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
- .7 Final Payment:
 - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

- .2 When Work deemed incomplete by Departmental Representative complete outstanding items and request re-inspection.

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 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with Departmental Representative to:
 - .1 Verify Project requirements.
 - .2 Review warranty requirements.
 - .2 Departmental Representative to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
 - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in French.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

1.3 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
 - .1 Provide files, racks, and secure storage.

- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.4 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Division 01 33 00 – Submittal Procedures

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA-G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W47.1, Certification of Companies for Fusion Welding of Steel Structures.
 - .3 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding.
 - .4 CSA W59, Welded Steel Construction (Metal Arc Welding) (metric version).
 - .5 CSA-Z245.1, Steel Pipe.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product data: submit manufacturer's printed product literature, specifications and datasheet.

1.4 DEFINITIONS

- .1 Post helix system (screwed pile): pile with one or more helical shaped steel helix attached to a central steel shaft connected to the structure with a steel connection.

1.5 SYSTEM DESIGN

- .1 Design requirements: helical piles have to be designed by a professional structural and geotechnical engineer and a membre de l'Ordre des Ingénieurs du Québec, experienced in the design of this work.
- .2 The design must take into consideration the loads required for the structure's foundations. A geotechnical study of the Lac Saint-François site will be given to the lowest responsive bidder upon request.
- .3 The pile designer is responsible to ensure he has the information required to complete his design with regards to the soil conditions.
- .4 The experienced professional engineer must design the helical piles (i.e., diameter of the central shaft, helix size, penetration depth, etc.), depending on the load requirements.

1.6 DOCUMENTS TO BE SUBMITTED

- .1 Shop drawings: Submit shop drawings showing profiles and product components, including helix and accessories.
- .2 Provide an Evaluation Report that demonstrates compliance of the product with the National Building Code 2015.

- .3 Provide the following information:
 - .1 Each helical pile location, helical piles shaft diameter and length, helix diameter, installation angle below the horizontal (as required) and the extension in the axis of the shaft length; the final installation torque on all helical piles and the final torque.

1.7 QUALITY ASSURANCE

- .1 The installers must be trained and certified by the helical pile manufacturer experienced and specialized in the installation of similar structures to those required for this project.
- .2 Provide the signed cards of the installers that will be present on the work site.
- .3 Provide a manufacturer's certificate confirming that the manufacturer has a quality control system. This document must confirm the quality of raw materials (central shaft and steel helix) by metallurgical certificates and quality control tests of the welds.

Part 2 Products

2.1 MANUFACTURED COMPONENTS

- .1 Helical piles: Use the following components designed by an approved manufacturer.
- .2 Components:
 - .1 The piles and components must be fabricated with steel conforming to ASTM A 500 Grade C and/or CAN/CSA G40.21.
 - .2 The piles and components must be protected by a hot dip galvanization coating conforming to ASTM A-123-13 or an approved anode protection system (sacrificial or impressed current system).
 - .1 The expected life span of the piles is 50 years

2.2 MATERIALS

- .1 Steel pipe: spiral butt, of sizes and wall thicknesses indicated, cut ends to API SPEC 5L. The tubes must be equipped with a frost protection system.
- .2 The piles and components must be fabricated with steel conforming to ASTM A 500 Grade C and/or CAN/CSA G40.21.
- .3 Pipe chemical composition: to CSA-Z245.1 and ASTM A252.
- .4 Pipe allowable tolerances:
 - .1 Deviation from straight line, specified diameter, wall thickness and out-of-roundness on body of pipe and at pipe ends to conform to API SPEC 5L.
 - .2
- .5 Protect all the components with a hot dip galvanization coating in accordance with CAN/CSA G164 and with a covering of minimum 600 g/m² if zinc or an equivalent coating protection.

Part 3 Execution

3.1 INSTALLATION

- .1 The installation must be completed by a certified installer.
- .2 Do not damage surrounding structures.
- .3 Provide installation equipment capable of positioning the helical pile to the desired resistance and angle.
- .4 The installation equipment must be equipped with a device that provides torque readings during the installation. Provide access to the torque reading data to the Department Representative.
- .5 Layout the helical pile locations as designed on the drawings and ensure that the location of each pile is within the prescribed limits of the project.
 - .1 Establish appropriate angle at the beginning of the installation.
- .6 Monitor the torque readings during the installation and record the final torque reading values for each helical pile.
 - .1 Ensure that the torque is gradual and constant in the last meter of installation.
 - .2 Remove all obstructions encountered or relocate and adjust screw piles as required.
 - .3 The installer must ensure that the helix of the pile is embedded into undisturbed soil.
- .7 Provide and install extensions to the lead section to make sure the pile is screwed in at the required depth or torque readings. The extensions are either welded or bolted using couplings.

3.2 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.3 ON-SITE QUALITY CONTROL REQUIREMENTS

- .1 Monitor the torque readings during the entire installation process and record the final torque readings values.

3.4 TRANSPORTATION, STORAGE AND HANDLING

- .1 Transport, store and handle the materials in accordance with section 01 61 00 – Common Product Requirement
- .2 Transport, store and handle the materials in accordance with the written instructions from the manufacturer.
- .3 Transport to the work site the new, in perfect conditions, with certified test reports, and the tubes for the piles with the manufacturer's logo and the identification mark of the factory.

- .4 Protection and storage:
 - .1 Store and handle the tubes for the piles in accordance to the manufacturer's written instructions in a way to prevent any deformation, any bending, or any permanent damage to the socketing elements.
 - .2 Place the tubes for the piles on supports or levelled blocks with care. There must be 3 m between each tube and 0.6 m from the extremity of the other tubes.
 - .3 Store the tubes for the piles in a manner that will facilitate planned inspections and prevent and corrosion as well as any other damage the protection coating before their installation.
- .5 Waste management and disposal
 - .1 Bring the paint and coating products that are unused to an approved location for hazardous material collection.
 - .2 It is prohibited to pour unused paint products in a sewage system, in a waterway, in a lake, on the ground or any other location that would cause a risk for health or the environment.
- .6 Clean the site in accordance with section 01 74 11 – Cleaning.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Division 01 33 00 – Submittal Procedures

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A269, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 CSA International
 - .1 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA S16, Design of Steel Structures.
 - .4 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .5 CSA W59, Welded Steel Construction (Metal Arc Welding).
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for sections, plates, pipe, tubing, bolts and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Quebec, Canada. The engineer must be a member of l'Ordre des ingénieurs du Québec.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

- .4 Sample
 - .1 Submit a galvanized steel mesh panel sample for approval by the Departmental Representative prior to production to verify quality following galvanizing. The steel mesh must meet the following criteria:
 - .1 Hot-dip galvanized after cutting according to dimensions in contract documents
 - .2 Be straight do not warp
 - .3 Wire mesh must be smooth, not rough to avoid injuries to users.
 - .2 Submit a galvanized handrail sample for approval by the Departmental Representative prior to production to verify quality following galvanizing. The handrail must meet the following criteria:
 - .1 Hot-dip galvanized after cutting according to dimensions in contract documents
 - .2 Handrail must be smooth, not rough and without sharp edge to avoid injuries to users.

1.4 QUALITY ASSURANCE

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W.
- .2 Steel pipe: to ASTM A53/A53M standard weight, finished as indicated.
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.
- .5 Bolts and anchor bolts: to ASTM A307 and hot-dipped galvanized finish.
- .6 Welded wire fabric: 50,8x50,8 - MW 4,76 / MW4,76 to CSA G30.18 galvanized after welding and cuts.

- .7 Steel angles: galvanized, sizes indicated for openings. Angles must be welded or bolted back-to-back angles to profiles as indicated.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.
- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal fabrications installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 ERECTION

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Supply components for work by other trades in accordance with shop drawings and schedule.
- .6 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
 - .1 Primer: maximum VOC limit 250 g/L to GS-11.

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 Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.
- .3 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 06 10 00 ROUGH CARPENTRY

1.2 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA International)
 - .1 CSA O80 Series-97 (R2002)- O80S2-05, Wood Preservation.
 - .2 CSA O80.201-M89, This Standard covers hydrocarbon solvents for preparing solutions of preservatives.
- .2 American Wood-Preservers' Association (AWPA)
 - .1 AWPA M2, Standard for Inspection of Treated Wood Products.
 - .2 AWPA M4, Standard for the Care of Preservative-Treated Wood Products.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 For products treated by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
 - .1 Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.
 - .2 Moisture content after drying following treatment with water-borne preservative.
 - .3 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.
- .2 Recommended materials and corrosion protection for metal connectors and fasteners.
- .3 Recommended product for on-site treatment.

1.4 QUALITY ASSURANCE

- .1 Plant inspection of products treated by pressure impregnation will be carried out by designated testing laboratory to AWPA M2, and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2. Provide quality assurance documents immediately following the completion of the first inspections and tests, in progress to allow for continuous verification of results by the Departmental Representative. For each delivery of treated timber, the Contractor must provide the Departmental Representative, at least 7 days prior to delivery, with a certificate of compliance containing the following information for each production lot:
 - .1 The results of the retention test (kg / m³) and the corresponding requirement of CAN / CSA O08; Wood preservation;
 - .2 The results of the penetration test (%) and the corresponding requirement of CAN / CSA O08; Wood preservation;
- .2

Part 2 Products

2.1 MATERIALS

- .1 Preservative: to CSA-O80 Series, odourless salt water-borne, for stained finish, for a category of use 3.2.
- .2 Preservatives: maximum VOC limit 350g/L.

Part 3 Execution

3.1 CONSTRUCTION

- .1 Use connectors and fasteners that have corrosion protection specified for all construction work with treated wood products.

3.2 APPLICATION: PRESERVATIVE

- .1 Before treat, dry lumber to a moisture content of not more than 25%
- .2 Treat all wood pieces to CSA O80-M, with a preservative product of CA-B type, until a net retention of 3.3 kg/m³. Wood must be incised. In the case of a refusal, perform the tests and provide the retention reach.
- .3 Wood pieces must be treated after cutting, drilling and notching to obtain lengths and shapes required on site.
- .4 **Wood pieces for guardrails and decking of the roof shall not be incised. All other wooden elements must be incised.**
- .5 Following water-borne preservative treatment, dry material to maximum moisture content of 25%.

3.3 ON SITE TREATMENT

- .1 Perform work in accordance with AWPA M4 and changes in CSA O80 series, under Additional Requirements to AWPA M2.
- .2 Retreat surfaces exposed by cutting or drilling. Apply two abundant layers of the recommended preservative.
- .3 Remove from any chemical deposit any treated wood parts on which a finishing product will be applied.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 06 05 73 – WOOD TREATMENT

1.2 REFERENCE STANDARDS

- .1 CSA International
 - .1 CSA O80 Série-F97 (C2002)- O80S2-05, Wood preservative.
 - .2 CSA O141-05, Softwood Lumber.
 - .3 CAN/CSA-Z809, Sustainable Forest Management.
 - .4 CSA O86-17, Engineering design in wood
- .2 ASTM International
 - .1 ASTM A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - .2 ASTM A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - .3 ASTM A307, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength
- .3 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber.
- .4 National Research Council Canada (NRC)
 - .1 National Building Code of Canada 2015 (NBC).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00- Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for wood products and accessories and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Québec, Canada.

1.4 QUALITY ASSURANCE

- .1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

1.5 DELIVERY, 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.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect wood from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 FRAMING STRUCTURAL AND PANEL MATERIALS

- .1 Wood: B.C Fir (Douglas Fir) with the following finish and maximum moisture content.
 - .1 Main columns (191x191mm) and beams (140x292mm): B.C. Fir No. 1 (Douglas fir) with S4S finish (surfaced on four sides), with a moisture content not exceeding 25% (S-Grn).
 - .2 Roof column, lower landing column and bracing (140x140mm): BC Fir No.1 (Douglas Fir) with S4S (surfaced on four sides) finish, moisture content not exceeding 25% (S -Grn).
 - .3 Stair stringer and landings joists (64x286mm): B.C. Fir SS (Douglas fir) with S4S finish (surfaced on four sides), with a moisture content of no more than 19% (S-Dry).
 - .4 Decking and steps (70x152mm): B.C. Fir No.1 / No.2 (Douglas Fir) with S1S finish (surfaced on one side), moisture content not exceeding 19% (S-Dry).
 - .5 All other wood elements: B.C. Fir No.1 / No.2 (Douglas fir) with S4S finish (surfaced on four sides), with a moisture content of no more than 19% (S-Dry).
- .2 Some parts require cutting or grinding. This must be done prior to the CA-B wood preservative treatment described in Section 06 05 73 - WOOD TREATMENT.

2.2 ACCESSORIES

- .1 Bolts: 12 mm diameter unless indicated otherwise, complete with nuts and washers.
- .2 Joist hangers, connectors and fasteners: in accordance with accepted shop drawings, minimum 1 mm thick sheet steel, galvanized to minimum ZF001 coating designation.
- .3 Fastener Finishes:
 - .1 Galvanizing: to ASTM A123/A123M, use galvanized fasteners for exterior work .
 - .2 Proprietary corrosion resistant fasteners for pressure- preservative : as recommended by manufacturer for material and service conditions and as specified in Section 06 05 73 - Wood Treatment.
- .4 Wood Preservative: as specified in Section 06 05 73 - Wood Treatment.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 FRAMING INSTALLATION

- .1 Install engineered framing and plant fabricated structural wood components, including all hangers, connectors and fasteners, in accordance with accepted shop drawings and manufacturers' instructions.
- .2 Install members true to line, levels and elevations, square and plumb.
- .3 Construct continuous members from pieces of longest practical length.
- .4 Install spanning members with "crown-edge" up.
- .5 Select exposed framing for appearance. Install lumber materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.
- .6 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .7 Countersink bolts where necessary to provide clearance for other work.

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 Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

3.4 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by rough carpentry installation.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 06 15 00 – Wood Decking

1.2 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.32, Sheathing, Membrane, Breather Type.
 - .2 CAN/CGSB-51.34, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .2 CSA Group (CSA)
 - .1 CSA A123.3-05(R2010), Asphalt Saturated Organic Roofing Felt.
 - .2 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
 - .3 CSA O118.1-08, Western Red Cedar Shakes and Shingles.
 - .4 CSA O118.2-08, Eastern White Cedar Shingles.
- .3 Cedar Shake and Shingle Bureau (CSSB)
 - .1 CSSB-97, Cedar Shake and Shingle Grading Rules.
 - .2 CSSB New Roof Construction Manual for Roof Application Details 2011.
 - .3 CSSB Exterior and Interior Wall Manual for Sidewall Application Details 2002.
- .4 National Research Council Canada (NRC)
 - .1 National Building Code of Canada 2015 (NBC).

1.3 DEFINITIONS

- .1 Shingle: tapered slice of wood sawn from block with taper in direction of grain or axial direction.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00- Submittal Procedur] .
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for wood shingles and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Include information on preservation and restoration of shingles.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Quebec, Canada.
 - .2 Indicate details of flashing installation.

- .4 Samples:
 - .1 Submit duplicate full size shingles, of finish and profile specified.

1.5 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Installer: company or person specializing in shingle and shake work installations with 5 years of experience.
- .2 Mock-ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00- Quality Control.
 - .1 Construct 1200 mm x 1200 mm mock-up where directed by Departmental Representative.
 - .2 For testing to determine compliance with performance requirements.
 - .1 Perform tests as follows:
 - .1 Allow 24 hours for inspection of mock-up before proceeding with work.
 - .2 When accepted, mock-up will demonstrate minimum standard of quality required for this work.
 - .2 Approved mock-up may remain as part of finished work.
- .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.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00- Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Exercise care to avoid damage during unloading and storing.
 - .2 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .3 Store and protect shingles from nicks, scratches, and blemish].
 - .4 Replace defective or damaged materials with new.
 - .5 Remove only in quantities required for same day use.

1.7 GARANTIE PROLONGÉE

- .1 For work covered by this section, 07 31 29- Sawn Shingles, the 12-month warranty period is extended to 60 months.

- .2 The Contractor hereby certifies that the shingle sheathing will remain in place and remain watertight in accordance with the general conditions except that the warranty period will be 60 months.

1.8 UNUSED MATERIALS

- .1 Unused shingles remain property of Owner.
- .2 Return unused shingles to Owner. Retain packaging or rewrap shingles to form complete bundles.
- .3 Label packages to identify product, quantity and manufacturer/supplier.
- .4 Deliver and store in location designated by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 White cedar shingles: to CSA O118.2, 450 mm length, random width, square pattern, A Extra (Blue Label) Grade, pressure treated.
 - .1 CAN/CSA-Z809 or FSC or SFI certified.

2.2 ACCESSOIRES

- .1 Nails: to CSA O118.1, made of hot-dip galvanized steel, 2 mm thick, with a head diameter of at least 5 mm and sufficient length to penetrate completely into the underlying coating without piercing the underlying material.
- .2 Aeration plastic underlay
 - .1 Acceptable products :
 - .1 Solmax Hypernet;
 - .2 Benjamin Obdyke Cedar Breather de Benjamin Obdyke;
 - .3 Mapei Mapelath;
 - .4 equivalent approved by the Departmental Representative.
- .3 Self-adhering elastometric membrane for roofing
 - .1 Acceptable products :
 - .1 Grace Ice & Water Shield;
 - .2 Soprema Lastobond Shield;
 - .3 Bakor Blue skin;
 - .4 equivalent approved by the Departmental Representative.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.3 APPLICATION

- .1 Do wood shingle work in accordance with National Building Code of Canada (NBC) and CSA O118.1.
- .2 Install shingles over dry substrate.
- .3 Space shingles from 3 to 10 mm.
- .4 Stagger joints minimum of 40 mm in succeeding courses. Ensure that in any 3 courses no two joints are in alignment.
- .5 Use two nails per shingle. Space nails 20 mm from edge and 40 mm above butt line of following course.
- .6 Drive nails flush but do not crush shingles.
- .7 **The use of pneumatic tools for the installation of shingles is prohibited.**

3.4 SHINGLE AND SHAKE ROOFING

- .1 Install the shingles using a method to obtain an exposure in accordance with the indicated dimensions on the plans and to cover all the surface of the 3 layers of shingles.
- .2 For the eaves, install 2 layers of shingles by extending them 40 mm over the first siding board and the inferior roof board. Also extend the shingles at least 19 mm of the extremity of the gable.
- .3 Install the shingles so that the grain of the wood is perpendicular to the eaves.
- .4 Saw the shingles parallel to the axis of the valley. Do not stagger the joints in the valley.
- .5 Install self-adhesive waterproofing membrane with required primer as per manufacturer's instructions and drawings.
- .6 The minimum overlap of the membranes shall be 150mm.

3.5 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 Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

3.6 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by wood shingles and shakes installation.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures
- .2 Section 01 35 29.06 - Health and Safety Requirements
- .3 Section 01 35 43 - Environmental Procedures
- .4 Section 01 74 11 - Cleaning

1.2 REFERENCES

- .1 Consolidation Regulations of Canada (C.R.C.)
 - .1 Wildlife Area Regulations (C.R.C. c. 1609)
- .2 Revised Statutes of Canada (R.S.C.)
 - .1 Canada Wildlife Act (R.S.C. c. W-9)
- .3 Species at Risk Act (SARA)

1.3 DEFINITIONS

- .1 Close-cut clearing consists of cutting off standing trees, brush, scrub, roots, stumps and embedded logs, removing at, or close to, existing grade and disposing of fallen timber and surface debris.
- .2 Underbrush clearing consists of removal from treed areas of undergrowth, deadwood, trees smaller than 50 mm trunk diameter and disposing of fallen timber and surface debris.
- .3 Grubbing consists of excavation and disposal of stumps and roots, boulders and rock fragments of specified size to not less than specified depth below existing ground surface.
- .4 Pruning consists of removal of specified branches deemed to be undesirable from a living tree by cutting them from their base.

1.4 QUALITY ASSURANCE

- .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .2 Safety Requirements: worker protection.
 - .1 Workers must wear dust masks, gloves, long sleeved and protective clothing and eye protection when clearing and grubbing.
 - .2 Clean up spills of preservative materials immediately with absorbent material and safely discard to landfill.

1.5 STORAGE AND PROTECTION

- .1 Prevent damage to landscaping, water courses, shrubs, trees, root systems of trees and other natural features which are to remain.

- .1 Repair damaged items to approval of Departmental Representative.
- .2 Replace trees designated to remain, if damaged, as directed by Departmental Representative.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 At completion of dike reshaping work, wood residues will need to be shredded on-site and spread on the ground, at locations designated by the Departmental Representative and in a way to avoid generating mounds.

Part 2 Products

2.1 MATERIALS

- .1 Not used.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control plan, specific to site, that complies with Section 01 35 43 - Environmental Procedures.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 PREPARATION

- .1 Inspect site and verify, with Departmental Representative, items designated to remain.
 - .1 During work execution, if Contractor judges additional trees must be included in clearing operations, he shall obtain Departmental Representative's approval before proceeding.
- .2 During this inspection, Departmental Representative and Contractor will identify trees and shrubs to grub in order to allow correct execution of dike reshaping works.
 - .1 Clearing works shall allow to keep topsoil in place and to avoid to uselessly extract tree stumps and roots. Only trees and shrubs for which grubbing is needed for the success of the rest of the work will be removed.
 - .2 Contractor will be restricted to grubbing only for trees identified during this inspection.
 - .3 During work execution, if Contractor judges additional trees must be included in grubbing operations, he shall obtain Departmental Representative's approval before proceeding.
- .3 If Contractor damages trees or shrubs to preserve or located outside of worksite enclosure as specified on plans or authorized by Departmental Representative, trees or shrubs will be replaced with trees or shrubs of greater or equal maturity.

- .4 Contractor shall obtain Departmental representative's authorization before starting clearing and grubbing.
- .5 Keep roads, access paths and sidewalks free of dirt and debris.

3.3 CLEARING

- .1 Clearing includes cutting, felling and trimming of trees into sections and satisfactory disposal of trees and other vegetation designated for removal, including snags, brush, rubbish and downed timber occurring within cleared areas.
- .2 Clear as indicated by Departmental Representative, by cutting at height of not more than 300 mm above ground. In areas to be subsequently grubbed, height of stumps left from clearing operations to be not more than 1000 mm above ground surface.
- .3 Cut off branches overhanging area cleared as directed by Departmental Representative.

3.4 CLOSE CUT CLEARING

- .1 Close cut clearing to ground level every tree or shrub located on the dike.
- .2 Trees and shrubs clearing must be constrained to dike's ridge and banks.
- .3 Perform close cut clearing by hand so that existing muskeg is not damaged.
- .4 If needed, cutting by sections from crown will be executed before cutting the trunk at ground level.

3.5 ISOLATED TREES

- .1 Cut off isolated trees as directed by Departmental Representative at height of not more than 300 mm above ground surface.
- .2 Grub out isolated tree stumps.
- .3 Prune individual trees as indicated.
- .4 Trim trees designated to be left standing within cleared areas of dead branches 4 cm or more in diameter; and trim branches to heights as indicated.
- .5 Cut limbs and branches to be trimmed close to bole of tree or main branches.
- .6 Paint cuts more than 3 cm in diameter with approved tree wound paint.

3.6 UNDERBRUSH CLEARING

- .1 Clear underbrush from the area where will be built the tower at ground level, according to instructions from Departmental Representative.

3.7 GRUBBING

- .1 Remove and dispose of roots larger than 7.5 cm in diameter, matted roots, and designated stumps from indicated trees to grub.
- .2 Grub out stumps and roots to not less than 300 mm below ground surface. Special measures must be taken when cutting the trees on the sides of the dike to avoid damage to the dike structure. For the trees on the sides of the dike, leave the stump in place on the soil surface. Grub out stump in the presence of the Departmental Representative.
- .3 Fill depressions made by grubbing with suitable material and return surface to conform with existing adjacent surface of ground.

3.8 PRUNING

- .1 If pruning is needed for execution of other works, it will be executed according to the following requirements.
 - .1 Only prune branches that are designated and approved by the Departmental Representative.
 - .2 Avoid pruning flush to a main branch or to the trunk.
 - .3 Use a secator, a pruner or a pruning saw over an axe or a chain saw, which risk to damage trunk and favor spread of diseases or introduction of insect pest.
 - .4 Preferably, cut branches at their stump, which is the thicker part located at 2 or 3 cm from its base.
 - .5 Cut in angle to prevent water from accumulating.
 - .6 Cut branches by 1 m maximal length sections.
 - .7 Spread branches in nearby forest, taking care not to damage existing vegetation, to allow organic material to decompose.

3.9 REMOVAL AND DISPOSAL OF DEBRIS

- .1 Remove cleared and grubbed materials off site and dispose in an authorized site.
- .2 The Contractor may use wood chips to reduce compaction of roots or to control surface water. Wood chips must be removed once landscaping work is completed.
- .3 Remove diseased trees identified by Departmental Representative and dispose of this material to approval of Departmental Representative. Apply strict control to the disposal of elms, due to Dutch Elm disease and butternut canker. Remove all parts of elm trees that have been cut, including the trunk, to an authorized disposal facility and provide proof to Departmental Representative.

3.10 FINISHED SURFACE

- .1 Leave ground surface in conditions allowing the completion of earthwork finishing and seeding.

3.11 CLEANING

- .1 Proceed in accordance with Section 01 74 11- Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, flagging tape, tools and equipment.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 43 – Environmental Procedures
- .3 Section 31 23 33.01 – Excavating, trenching and backfilling

1.2 REFERENCES

- .1 Health Canada - Pest Management Regulatory Agency (PMRA)
 - .1 National Standard for Pesticide Education, Training and Certification in Canada (1995).
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 Department of Justice Canada (Jus)
 - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
 - .2 Fertilizers Act (R.S. 1985, c. F-10).
 - .3 Fertilizers Regulations (C.R.C., c. 666).
 - .4 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.
- .4 Canadian Nursery Landscape Association
- .5 Normes de bonne pratique de la Société internationale d'arboriculture Québec (SIAQ).
- .6 Bureau de normalisation du Québec - NQ 0605-200 - Entretien arboricole et horticole.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for tree and shrub preservation materials and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit monthly written reports on maintenance during warranty period, to Departmental Representative identifying:
 - .1 Maintenance work carried out.
 - .2 Development and condition of plant material.
 - .3 Preventative or corrective measures required which are outside Contractor's responsibility.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 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 Requirements:
 - .1 Store materials in dry location, off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect tree and shrub preservation materials from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

1.5 MAINTENANCE DURING WARRANTY PERIOD

- .1 From time of acceptance by Departmental Representative to end of warranty period, perform following maintenance operations.
 - .1 Water to maintain soil moisture conditions for optimum growth and health of plant material without causing erosion.
 - .2 Apply pesticides in accordance with National Standard for Pesticide Education, Training and Certification in Canada, Federal, Provincial and Municipal regulations as and when required to control insects, fungus and disease. Obtain product approval from Departmental Representative prior to application.
 - .3 Apply fertilizer in early spring at manufacturer's suggested rate.
 - .4 Remove dead, broken or hazardous branches from plant material. Dispose of debris through environmentally friendly method

Part 2 Products

2.1 MATERIALS

- .1 Fill:
 - .1 Type (A): clean, natural river sand and gravel material, free from silt, clay, loam, friable or soluble materials and organic matter.
 - .2 Type (B): excavated soil, free from roots, rocks larger than 75 mm, building debris, and toxic ingredients (salt, oil, etc). Excavated material shall be approved by Departmental Representative before use as fill.
- .2 Coarse washed stones: 35-75 mm diameter clean round hard stone.
- .3 Draintile: 100 mm diameter corrugated coded plastic perforated tubing complete with snap couplings. Fill vents with 20 mm clear stone.
- .4 Peatmoss:
 - .1 Derived from partially decomposed species of Sphagnum Mosses.
 - .2 Elastic and homogeneous.
 - .3 Free of wood and deleterious material which could prohibit growth.
 - .4 Shredded minimum particle size: 5 mm.
 - .5 Natural pH and without add lime
- .5 Fertilizer:
 - .1 To Canada Fertilizer Act and Fertilizers Regulations.
 - .2 Complete, commercial, slow release with 35% of nitrogen content in water-insoluble form.
- .6 Anti-desiccant: commercial, wax-like emulsion.

- .7 Filter Cloth:
 - .1 Type 1: 100 % non-woven needle punched polyester, 2.75 mm thick, 240 g/m² mass.
 - .2 Type 2: biodegradable burlap.
- .8 Wood posts: 38 x 89 x 2400 mm length, untreated wood.
- .9 Welded wire fabric (WWF): 100 x 100mm
- .10 Flooring: 50 x 100 mm timber attached to tree perimeter using plastic strips or other method that will not damage the tree.
- .11 Shielding barriers for shafts: 40 x 40 x 5 x 2440 mm T-posts with 1800 mm oc center distance, with wooden slat fastened to the posts with wire n 9, 13 per post.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for tree and shrub preservation installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 IDENTIFICATION AND PROTECTION

- .1 Trees must be protected before the beginning of the work
- .2 Identify plants and limits of root systems to be preserved as approved by Departmental Representative.
- .3 Protect plant and root systems from damage, compaction and contamination resulting from construction as approved by Departmental Representative.
- .4 Ensure no pruning is done inside drip line. If pruning inside drip line is required consult an arborist or Canadian Certified Horticultural Technician (CCHT) as approved by Departmental Representative.

3.3 ROOT CURTAIN SYSTEM

- .1 Lay the plank flooring vertically around the perimeter of the designated deciduous trees in the active work area.

3.4 TRENCHING AND TUNNELING FOR UNDERGROUND SERVICES

- .1 Determine limits of excavation required for construction, as directed by Departmental Representative.
- .2 Before excavation begins, dig a trench at least 500 mm wide x 1500 mm deep by hand along the perimeter of the excavation limits.

- .3 Make a clean cut of the stripped roots, on the trench side adjacent to the plants to be kept. Cut so that the root ends point obliquely downwards.
- .4 Install wooden poles and welded wire mesh against the wall of the trench on the construction side.
- .5 Secure the Type 2 filter cloth on the vegetation side of the wire mesh.
- .6 Prepare a homogeneous mixture of fertilizers, source material and organic matter.
 - .1 Add the latter to an organic matter content of 7-9% by weight.
 - .2 Incorporate dry type 2: 12: 8 fertilizer at a rate of 1.5 kg / m³ into the mixture.
- .7 Fill the space between the protection screen and the plants to be maintained by spreading the homogeneous mixture in layers up to 150 mm thick, each compacted to a density of 85% on the normal Proctor test.
- .8 Protect shield from damage during construction.
- .9 During construction, water the plants and root barrier sufficiently so that soil moisture conditions remain optimal until the backfill is completed.
- .10 Protect root screen before and during earthmoving operations.

3.5 LOWERING GRADE AROUND EXISTING TREE

- .1 Begin Work in accordance with schedule approved by Departmental Representative.
- .2 Cut slope not less than 500 mm from tree trunk to new retaining wall.
- .3 Excavate to depths as indicated. Protect from damage root zone which is to remain.
- .4 When severing roots at excavation level, cut roots with sharp tools.
- .5 Prepare homogeneous soil mixture consisting by volume of:
 - .1 60% excavated soil cleaned of roots, plant matter, stones, debris.
 - .2 25% coarse, clean sterile sand.
 - .3 15% organic matter.
 - .4 Grade 2:12:8 fertilizer at rate of 1.5kg/m³.
- .6 Place soil mixture over area of excavation to finished grade level. Compact to 85% Standard Proctor Density.
- .7 Water entire root zone to optimum soil moisture level.
- .8 Achieve plant cover by seeding as required by Departmental Representative

3.6 PRUNING

- .1 Prune in accordance with Departmental Representative requirements.
- .2 Prune crown to compensate for root loss while maintaining general form and character of plant. Dispose of debris through environmentally friendly method.

3.7 ANTI-DESICCANT

- .1 Apply anti-desiccant to foliage where applicable and as directed by Departmental Representative.

3.8 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 Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 32 01 90.33– Trees and shrubs preservation.
- .2 Section 32 92 19.13– Mechanical Seeding

1.2 REFERENCES

- .1 Agriculture and Agri-Food Canada
 - .1 The Canadian System of Soil Classification,
- .2 Canadian Council of Ministers of the Environment
 - .1 PN1340, Guidelines for Compost Quality.
- .3 Standard BNQ 0605-100 « Landscaping with plants ».
- .4 Standard BNQ 2501-025, « size analysis » modified for mixed soils (organic and inorganic).
- .5 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .1 EPA 832R9, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 DEFINITIONS

- .1 Compost:
 - .1 Mixture of soil and decomposing organic matter used as fertilizer, mulch, or soil conditioner.
 - .2 Compost is processed organic matter containing 40% or more organic matter as determined by Walkley-Black or Loss On Ignition (LOI) test.
 - .3 Product must be sufficiently decomposed (i.e. stable) so that any further decomposition does not adversely affect plant growth (C:N ratio below 50), and contain no toxic or growth inhibiting contaminants.
 - .4 Composed bio-solids to: CCME Guidelines for Compost Quality, Category (A).

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Quality control submittals:
 - .1 Soil testing: submit certified test reports showing compliance with specified performance characteristics and physical properties as described in PART 2 - SOURCE QUALITY CONTROL.
 - .2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Divert unused soil amendments from landfill to official hazardous material collections site approved by Departmental Representative.
- .3 Do not dispose of unused soil amendments into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

Part 2 Products

2.1 TOPSOIL

- .1 Brown earth: loose soil (brown) not too rich in clay but with sufficient quantity of sand, containing 4 to 5% of organic matter by weight for freehold sandy soils, and between 2 to 3% for clay-rich soils with a maximum acceptable humus content of 20%. This soil must have a pH of 5.5 to 7.0. This soil also must not contain any subsoil, roots, vegetation, debris, toxic materials, or stones over 50 mm in diameter.
- .2 Black soil: soil consisting of decomposition products, smooth and homogeneous, without colloidal residue, wood, sulphur and iron, and having a maximum water content of 15%. Shredded materials must be smaller than 6mm.
- .3 Coarse sand: natural sand only and must respect the grain size specifications of the following table. No more than 45% of particles can be retained between two (2) consecutive sieves of the table. The grain size distribution must be obtained in accordance with the testing methods of CAN/CSA-A23.2-2A.

<u>Sieve Size</u>	<u>Total mass passing through sieve in %</u>
10 mm	100
5 mm	95 à 100
2,5 mm	80 à 100
1,25 mm	50 à 90
630 µm	25 à 65
315 µm	10 à 35
160 µm	2 à 10

- .4 Topsoil recovered during earthworks and stockpiled on site (if applicable).
- .5 Topsoil mixe (for seeding)
 - .1 Composition :
 - .1 Two part brown soil
 - .2 One part black soil
 - .3 One part coarse sand
 - .4 One part organic mater

2.2 SOIL AMENDMENTS

- .1 Fertilizer:
 - .1 Fertility: major soil nutrients present in following amounts:
 - .1 Nitrogen (N): 20 to 40 micrograms available per gram of topsoil.
 - .2 Phosphorus (P): 40 to 50 micrograms of phosphate per gram of topsoil.
 - .3 Potassium (K): 75 to 110 micrograms of potassium per gram of topsoil.
 - .4 Calcium, magnesium, sulfur and micro-nutrients present in balanced ratios to support germination and/or establishment of intended vegetation.
 - .2 Sand: washed coarse silica sand, medium to coarse textured.
 - .3 Organic matter : compost Category A, in accordance with CCME PN1340, unprocessed organic matter, such as rotted manure, hay, straw, bark residue or sawdust, meeting the organic matter, stability and contaminant requirements.
 - .4 Limestone:
 - .1 Ground agricultural limestone.
 - .2 Gradation requirements: percentage passing by weight, 90% passing 1.0 mm sieve, 50% passing 0.125 mm sieve.

2.3 SOURCE QUALITY CONTROL

- .1 Advise Departmental Representative of sources of topsoil to be utilized with sufficient lead time for testing.
- .2 Contractor is responsible for amendments to supply topsoil as specified.
- .3 Soil testing by recognized testing facility for PH, P and K, and organic matter. The laboratory will need to recommend amendments to ensure that the soil is in accordance with the given specifications. Sampling, testing, and analyzing will be conducted in accordance with the applicable provincial norms.
- .4 Testing of topsoil will be carried out by testing laboratory designated by Departmental Representative.
 - .1 Soil sampling, testing and analysis must be carried out in accordance with applicable provincial standards.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 STRIPPING OF TOPSOIL

- .1 Ensure that methods and practices used comply with relevant regulations.
- .2 Weed, brush or remove areas or surfaces to be seeded or planted (shrubs, native / marine plants, herbaceous plants) by non-chemical means and remove vegetation removed by an ecological method.
- .3 Begin removing topsoil in areas or surfaces to be planted (shrubs, native / marine plants, herbaceous plants), once brush has been removed and evacuated from site.
- .4 In areas or surfaces that will be planted with herbaceous plants, remove topsoil to a depth of about 50mm (light stripping).
 - .1 Avoid mixing topsoil with soil from the subsoil if this could cause the texture of the topsoil to not conform to acceptable parameters, taking into account the intended use of the soil.
- .5 Store topsoil in locations determined by Departmental Representative.
 - .1 The height of the piles must not exceed 2 m.
 - .2 Topsoil stripped and stockpiled is kept temporarily, for possible use in the event of reclamation outside the areas to be seeded and planted (to be determined by the Departmental Representative).
- .6 Dispose of unused topsoil by ecological method.
- .7 Protect topsoil piles against contamination and settling, if reused.

3.3 PREPARATION OF EXISTING GRADE

- .1 Verify that grades are correct.
 - .1 If discrepancies occur, notify Departmental Representative and do not commence work until instructed by Departmental Representative.
- .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .3 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials.
 - .1 Remove soil contaminated with calcium chloride, toxic materials and petroleum products.
 - .2 Remove debris which protrudes more than 75 mm above surface.
 - .3 Dispose of removed material off site.
- .4 Cultivate entire area which is to receive topsoil to minimum depth of 100 mm.
 - .1 Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.4 PLACING AND SPREADING OF TOPSOIL/PLANTING SOIL

- .1 Place topsoil after Departmental Representative has accepted subgrade.
- .2 Spread topsoil in uniform layers not exceeding 150 mm.
- .3 For sodded areas keep topsoil 15 mm below finished grade.
- .4 Spread topsoil to following minimum depths after settlement:
 - .1 150 mm for seeded areas;
- .5 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.5 SOIL AMENDMENTS

- .1 If need be, apply amendment products prescribed by the laboratory and mix well throughout all the thickness of the topsoil layer.

3.6 FINISH GRADING

- .1 Grade to eliminate rough spots and low areas and ensure positive drainage.
 - .1 Prepare loose friable bed by means of cultivation and subsequent raking.
- .2 Consolidate topsoil to required bulk density using equipment approved by Departmental Representative.
 - .1 Leave surfaces smooth, uniform and firm against deep foot printing.

3.7 ACCEPTANCE

- .1 Departmental Representative will inspect and if required analyse the topsoil in place and determine acceptance of material, depth of topsoil and finish grading.

3.8 SURPLUS MATERIAL

- .1 Dispose of materials except topsoil not required off site.

3.9 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures
- .2 Section 01 35 43 - Environmental Procedures
- .3 Section 01 74 11 - Cleaning

1.2 REFERENCES

- .1 Consolidation Regulations of Canada (C.R.C.)
 - .1 Seeds Regulations (C.R.C. c. 1400)
- .2 Revised Statutes of Canada (R.S.C.)
 - .1 Seeds Act (R.S.C. c. S-8)

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for seeds.
- .3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Landscape Contractor: to be a member in good standing of the *Association des Paysagistes Professionnels du Québec* (Quebec's Professional Landscapers Association) for at least three (3) years.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements:
 - .1 Labelled bags of fertilizer identifying mass in kg, mix components and percentages, date of bagging, supplier's name and lot number.
 - .2 Fertilizer must be dry at delivery.
- .3 Storage and Handling Requirements:
 - .1 Store fertilizer off ground and in accordance with manufacturer's recommendations, in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.

1.6 WARRANTY

- .1 For seeding, 12 months warranty period is extended to one (1) full growing season.
- .2 Contractor hereby warrants that seeding will remain free of defects for one (1) full growing season.
- .3 Departmental Representative will conduct vegetation's growth inspection in June and October of the warranty period.

Part 2 Products

2.1 GRASS SEED

- .1 Canada "Certified" seed, in accordance with Government of Canada "Seeds Act" and "Seeds Regulations".
 - .1 Grass seed mixture.
 - .1 Mixture composition:
 - .1 1,60% *Agrostis gigantea* (A. alba);
 - .2 17,50% *Andropogon gerardii*;
 - .3 0,70% *Calamagrostis canadensis*;
 - .4 25,60% *Elymus canadensis*;
 - .5 19,00% *Festuca rubra*;
 - .6 3,10% *Panicum virgatum*;
 - .7 2,50% *Spartina pectinata*;
 - .8 30,00% *Lolium multiflorum*;
 - .9 100,00% Total.
 - .2 In packages individually labelled in accordance with "Seeds Regulations" and indicating name of supplier.

2.2 WATER

- .1 Free of impurities that would inhibit germination and growth.

2.3 FERTILIZER

- .1 Use of fertilizer is not required.

2.4 TOPSOIL

- .1 Only topsoil coming from surface pickling will be used for seeding.
- .2 Topsoil used for seeding must be free of fragments of invasive exotic plants, including common reed.
- .3 If Contractor plans to use soils from another source than the site for seeding purpose, he must submit soils analysis and characterization results to the Departmental Representative in order to ensure soils are free of contaminants, and that according to requirements of Section 01 35 43 - Environmental Procedures.

2.5 OTHER PRODUCTS

- .1 It is prohibited to use pesticide, herbicide and insecticide unless Departmental Representative authorizes otherwise.
- .2 It is prohibited to use any other product than the grass seed mixture, water and topsoil from the dike.

Part 3 Execution

3.1 EXAMINATION

- .1 Seeding is to be conducted on all damaged areas during the work.
- .2 Departmental Representative and Contractor will jointly conduct inspection of work site to establish and measure surfaces to seed.
- .3 Verification of Conditions: verify that the conditions of substrate previously installed under other Sections or Contracts are acceptable for mechanical seeding installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 SEED BED PREPARATION

- .1 Do not perform work under adverse field conditions as determined by Departmental Representative.
- .2 Remove and dispose of weeds; debris; stones 50 mm in diameter and larger and other deleterious materials.
- .3 Verify that grades are correct. If discrepancies occur, notify Departmental Representative and commence work when instructed by Departmental Representative.
- .4 Finish surfaces to make them free from depression and bumps.
- .5 Cultivate fine graded surface approved by Departmental Representative to 25 mm depth immediately prior to seeding.
- .6 Get surface's conditions and topsoil's layers thickness approved by the Departmental Representative prior to seeding.

3.3 SEED PLACEMENT

- .1 Ensure seed is placed under the supervision of a certified landscape planting supervisor.
- .2 For mechanical seeding:
 - .1 Use a mechanical landscape drill seeder appropriate for the surfaces to sow or use a manual seeding method with an appropriate manually operated seeder.
 - .2 Use equipment and method acceptable to Departmental Representative.

- .3 If Contractor uses a manually operated drop seeder ("Cyclone" type or equivalent), use a water ballast, landscaping type, smooth steel drum roller. Ballast as directed by Departmental Representative.
- .3 On cultivated surfaces, sow seed. Surfaces to sow are those designated during the jointly inspection conducted by Departmental Representative and Contractor.
- .4 Blend applications 150 mm into previous applications to form uniform surfaces.
- .5 Sow half of required amount of seed in one direction and remainder at right angles as applicable.
- .6 Incorporate seed by light raking in cross directions.
- .7 Consolidate mechanically seeded areas by rolling area if soil conditions warrant or if directed by Departmental Representative with equipment approved by Departmental Representative immediately after seeding.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Keep pavement and area adjacent to site clean and free from mud, dirt, and debris at all times.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
 - .1 Clean and reinstate areas affected by work.

3.5 PROTECTION

- .1 Protect newly seeded areas against deterioration due to pedestrian or other traffic.
- .2 If seeding could not be done before winter, coconut mats or other types of anti-erosion mats will be required to protect spring freshet surfaces.
- .3 Remove protection measures as indicated by Departmental Representative.

3.6 MAINTENANCE DURING ESTABLISHMENT PERIOD

- .1 Perform following operations from time of seed application until acceptance by Departmental Representative:
 - .1 Repair and reseed dead or bare spots to allow establishment of seed prior to acceptance.
 - .2 Control weeds by mechanical means utilizing acceptable integrated pest management practices.
 - .3 Adjust protection barrier as necessary to protect against deterioration due to pedestrian or other traffic as needed.

3.7 FINAL ACCEPTANCE

- .1 Seeded areas will be accepted by Departmental Representative provided that:
 - .1 Recovery of vegetation covers 90 % of seeded areas one (1) year after completion of seeding works.

- .2 Areas are uniformly established free of rutted, eroded, bare or dead spots and extent of weeds apparent in grass is acceptable.

3.8 MAINTENANCE DURING THE WARRANTY PERIOD

- .1 Perform the following work from the time works receipt until the end of the warranty period.
 - .1 Repair and re-seed dead grass surfaces and bare surfaces to the satisfaction of the Departmental Representative.

END OF SECTION