

**PUBLIC SERVICES AND  
PROCUREMENT CANADA**

**TEMPORARY PARKING LOT  
NEW GOVERNMENT OF CANADA BUILDING**

**TECHNICAL SPECIFICATIONS**

**PROJECT No. R.082974.349**

<b>FOR TENDERS</b>
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Quebec, March 29, 2021



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**Part 1            General**

**1.1                RELATED REQUIREMENTS**

- .1        All sections included in these specifications.

**1.2                WORK COVERED BY CONTRACT DOCUMENTS**

- .1        Work of this Contract includes construction of a new temporary parking lot prior to construction of the new Government of Canada building.
- .2        Work includes, without being limited to:
  - .1        Felling of certain existing trees and relocating of other trees.
  - .2        Excavation and stockpiling of topsoil on-site.
  - .3        Preparation of the parking lot infrastructure (excavation/backfill) and placement of foundation materials.
  - .4        Installation of a culvert and construction of a retention pond.
  - .5        Construction of cast-in-place concrete curb.
  - .6        Construction of an asphalt concrete pavement sidewalk.
  - .7        Paving of parking lot with asphalt pavement.
  - .8        Erasing of existing markings, if required.
  - .9        Pavement markings including lines, arrows and stop lines.
  - .10       Installation of sign panels.
  - .11       Installation of a lighting system on wooden poles with overhead electrical power supply.
  - .12       Re-grading and cleaning of a portion of the existing ditch.
  - .13       Hydraulic seeding and sodding.
  - .14       Transplanting certain trees.
  - .15       Site restoration.

**1.3                WORK BY OTHERS**

- .1        Work in collaboration with all other stakeholders involved and execute the Departmental Representative's instructions.
- .2        Co-ordinate work with that of other stakeholders. If any part of Work under this Contract depends upon work of another Contractor for proper execution or result, promptly report in writing to Departmental Representative any defects that may interfere with proper execution of Work.

**1.4                CONTRACTOR USE OF PREMISES**

- .1        Unrestricted use of site without restriction until Substantial Performance.
- .2        Coordinate use of site as directed by Departmental Representative.
- .3        Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

- .4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .5 Repair or replace portions of existing work that were altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .6 Upon completion of Work, ensure existing work is in condition equal to or better than the existing before Work began.

## **1.5 DELIVERY AND TRAFFIC**

- .1 Ensure material deliveries and heavy vehicle traffic take place during work period authorized by the Department.
- .2 Protect and maintain traffic on public roadways in accordance with the standards set forth by relevant authorities.

## **1.6 STRUCTURE LOCATION**

- .1 Comply with following procedure to pinpoint location of structures to build:
  - .1 Locate alignments, levels and points of reference for structures to build in accordance with the geometry and elevations indicated on plans.
  - .2 Conduct a joint verification with Departmental Representative to optimize finished site profile to suit existing conditions, taking into account existing structures, existing trees, proper drainage, etc.
  - .3 Assume all costs to rectify any non-conformance in structure location.
  - .4 Georeferenced AutoCAD files are provided to the Contractor for informational purposes only. The Contractor is responsible for location of Work.

## **1.7 EXISTING UTILITY SERVICES**

- .1 Notify Departmental Representative and relevant utility companies of intended interruption of services and obtain required authorizations.
- .2 Where Work involves breaking into or connecting to existing utility lines, give Departmental Representative forty-eight (48) hours' notice for necessary interruption of mechanical or electrical service. Keep duration of interruptions to a minimum. Perform Work at times established by local authorities having jurisdiction, with minimum disturbance to pedestrian, bicycle and vehicular traffic.
- .3 Provide alternative routes for pedestrian, bicycle and vehicular traffic, as required.
- .4 Establish location and extent of utility lines in work area prior to starting work. Notify Departmental Representative of findings.
- .5 Submit schedule to Departmental Representative for approval of any shutdown or closure of active utility or facility, including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .6 Provide temporary utility services, if required, as directed by Departmental Representative.
- .7 Where unknown utility lines are encountered, immediately advise Departmental Representative and confirm findings in writing.

- .8 Protect, relocate or maintain existing active utility lines. When inactive utility lines are encountered, cap off in manner approved by authorities having jurisdiction.
- .9 Record locations of maintained, re-routed and abandoned utility lines.

**1.8 REQUIRED DOCUMENTS**

- .1 Maintain one (1) copy of each of the following documents at job site:
  - .1 Contract drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed shop drawings.
  - .5 List of outstanding shop drawings.
  - .6 Change orders.
  - .7 Other Contract amendments.
  - .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 (N/A)**

**Part 3 Execution (N/A)**

**END OF SECTION**



**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 35 29.06 – Health and Safety Requirements.

**1.2 ACCESS TO WORK SITE**

- .1 Design, construct and maintain temporary access to work site, including safe traffic lanes separate from finished structures, in accordance with relevant municipal, provincial and other regulations.

**1.3 USE OF SITE AND FACILITIES**

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work provide temporary means to maintain security.
- .4 Install and maintain necessary sanitary facilities for personnel in accordance with standard requirements, as well as COVID-19-related requirements issued by the CNESST.

**1.4 EXISTING SERVICES**

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative forty-eight (48) hours of notice for necessary interruption of electrical or other services. Keep duration of interruptions to a minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .3 Provide alternative routes for personnel, pedestrian and vehicular traffic.

**1.5 SPECIAL REQUIREMENTS**

- .1 Carry out noise generating Work Monday to Friday between the hours of 7 a.m. and 6 p.m.
- .2 Submit Work schedule in accordance with Section 01 32 16.19 –
  - .1 Construction Progress Schedules – Bar (Gantt) Chart.
- .3 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .4 Keep within limits of work and avenues of ingress and egress.
- .5 Contractor vehicle access to work site is limited.
- .6 Deliver materials outside of peak traffic hours unless otherwise approved by Departmental Representative.

**1.6 SAFETY**

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

**1.7 SMOKE-FREE ENVIRONMENT**

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

**Part 2 Products (N/A)**

**Part 3 Execution (N/A)**

**END OF SECTION**

**Part 1            General**

**1.1            UNIT OR LUMP SUM PRICE**

- .1 All payment procedures outlined in the various references used throughout the sections of these specifications are replaced with the payment procedures stipulated in this Section.
- .2 The total Contract amount is broken down according to a description of work paid on a lump sum or unit price basis. All Work, including that not specifically mentioned in a specific item description, must be included in costs for the various relevant lump-sum or unit-price items on the Bid Schedule. No additional allowance will be allocated for work shown on plans or described in specifications that is not the subject of a specific item.
- .3 In each itemized unit or lump sum price, include all expenses, work, disbursements, payments, direct and indirect costs, mobilizations, demobilizations and actions, customs and duties, administrative costs, as well as all Contractor liabilities, obligations, omissions and errors associated with construction. Also include in these prices all overhead expenses such as insurance, contributions, interest, rent, taxes and other incidental expenses. Prices to cover losses and damages resulting from nature of the work, fluctuation of prices and wages, business risks, strikes, delays not attributable to Departmental Representative, transport restrictions, accidents or acts of nature.
- .4 Also include the following in itemized unit or lump sum price:
  - .1 Testing.
  - .2 Shop drawings signed and stamped by a professional engineer registered with the Ordre des ingénieurs du Québec.
  - .3 Certificates of compliance signed by a professional engineer registered with the Ordre des ingénieurs du Québec.
  - .4 Measures relating to health and safety, environmental protection, sedimentation control and water management.
  - .5 Supply, hauling, handling and use of materials.
  - .6 Materials, equipment, machinery and labour, including surveying and supervision.
  - .7 Protection of existing structures and those built.
  - .8 Temporary structures required for Work.
  - .9 Clean-up.
  - .10 All other costs related to compliance with requirements set out in the relevant specification sections that apply to each item in the table of amounts.

**1.2            SUBSTANTIAL PERFORMANCE OF WORK**

- .1 Once Work has been substantially performed, that is, a portion of the Work that the Departmental Representative agrees to accept separately is substantially performed, prepare and submit a comprehensive list of items to be completed or corrected and apply for Work to be reviewed to establish substantial performance of Work or substantial

performance of designated portion of Work. Failure to include items on list does not alter responsibility to complete Contract.

- .2 No later than three (3) days after receipt of list and application, Departmental Representative will review Work to verify validity of application, and no later than three (3) days after completing review, will notify Contractor if Work or designated portion of Work is substantially performed.
- .3 Departmental Representative will issue a certificate indicating the date of substantial performance of Work.
- .4 Immediately following issuance of certificate of substantial performance of Work, in consultation with Departmental Representative, establish reasonable date for final completion of Work.

### **1.3 FINAL PAYMENT**

- .1 Submit application for final payment when Work is completed.
- .2 No later than ten (10) days after receipt of application for final payment, Departmental Representative will review Work to verify validity of application. No later than seven (7) days after reviewing Work, Departmental Representative will give notification of acceptance or refusal of the application.
- .3 If Departmental Representative deems that the application for final payment is justified, the Departmental Representative will issue a certificate for final payment.

## **Part 2 Description of lump sum amount – Part A**

**This item is paid as a lump sum only, and includes, without being limited to:**

### **2.1 DIVISION 01 – GENERAL REQUIREMENTS**

- .1 Site organization
  - .1 Bonding and administration fees.
  - .2 Investigation, planning, management and supervision.
  - .3 Coordination of site operations with nearby businesses and residents.
  - .4 Coordination of site operations with nearby contractors.
  - .5 All permits and requests for authorization (municipal, provincial and federal).
  - .6 General waste management costs not included in other items.
  - .7 Connection to and disconnection from temporary services (electricity, water, etc.).
  - .8 Temporary public utilities (electricity, phone, internet, water, etc.).
  - .9 Signage, devices and equipment required to ensure user safety, such as signs, pedestrian walkways, etc.
  - .10 Temporary re-location of existing signs, if required.
  - .11 Supply, installation and removal of temporary site fencing around the various zones (construction site, hook-ups, storage, etc.), if required to ensure safety.
  - .12 Temporary site facilities.
  - .13 Supply, maintenance and demobilization of the field office and lavatories.

- .14 Construction site manager.
- .15 General cleaning of construction site, sidewalks and neighbouring streets.
- .16 Final site cleaning.
- .17 Security services, flaggers, supervisors, etc.
- .18 Protection of trees and shrubs.
- .19 Protection of electrical poles, lampposts, if required.
- .20 All elements in Part 01 of this section. Also includes work indicated on plans and specifications, for which payment is not included under any other measurement item.
- .2 COVID-19-specific sanitary measures, including the following elements:
  - .1 Equipment and accessories (sinks, handwashing products, masks, visors, plexiglass installations, posters and brochures, etc.) required in connection with COVID-19-related measures.
  - .2 Special installations (in the trailer, additional toilets if required, etc.).
  - .3 Transportation.
  - .4 Maintenance.
  - .5 Dismantling.
  - .6 Incidental expenses.

## **2.2 DIVISION 02 – EXISTING CONDITIONS**

- .1 Coniferous hedges and shrubs to remove, including the following:
  - .1 Cutting down trees.
  - .2 Stump removal.
  - .3 Cleaning work area.
  - .4 Disposal and/or recycling of wood substance (when it is not ash).
  - .5 Incidental expenses.

## **2.3 DIVISION 10 – SPECIAL WORK**

- .1 Supply and installation of small signs and posts including the following work:
  - .1 Supply of all materials (signs, posts, fasteners and all accessories necessary to properly install small signs).
  - .2 Transportation.
  - .3 Handling.
  - .4 Storage.
  - .5 Installation.
  - .6 Incidental expenses.

## **2.4 DIVISION 26 – ELECTRICAL**

- .1 Supply and installation of single lampposts (5 units), including the following work:
  - .1 Supply of all materials and equipment (40-ft (12.192 m) treated wood pole, guy wires (if required), wiring between the overhead network and lighting unit, 6-ft

- (1.829 m) long straight elliptical arm, standard LED lighting unit, photocell, fuseholder, fuse, connectors, identification plate, anchor bolts, hardware, accessories, etc.).
- .2 Installation and equipment.
- .3 Labour.
- .4 Supply of shop drawings and design calculations signed and stamped by a structural engineer, confirming the structural capacity of the Work.
- .5 All portions of Work presented in the shop drawings mentioned in the previous point, which are not described in the plans and specifications such as the concrete bases for the poles that could be required to ensure stability of the Work.
- .6 Incidental expenses.
- .2 Supply and installation of double lampposts (4 units), including the following work:
  - .1 Supply of all materials and equipment (40-ft (12.192 m) treated wood pole, guy wires (if required), wiring between the overhead network and lighting unit, two 6-ft (1.829 m) straight elliptical arms, two standard LED lighting units, photocell, fuseholder, fuse, connectors, identification plate, anchor bolts, hardware, accessories, etc.).
  - .2 Installation and equipment.
  - .3 Labour.
  - .4 Supply of shop drawings and design calculations signed and stamped by a structural engineer, confirming the structural capacity of the Work.
  - .5 All portions of Work presented in the shop drawings mentioned in the previous point, which are not described in the plans and specifications such as the concrete bases for the poles that could be required to ensure stability of the Work.
  - .6 Incidental expenses.
- .3 Electrical power supply system for lighting including the following work:
  - .1 Supply of all materials and equipment (combination box (socket and main circuit breaker) on a wooden light pole, power supply and distribution, grounding, conduit, wiring, accessories, hardware, etc.).
  - .2 Complete and functional installation of the system.
  - .3 Labour.
  - .4 Supply of shop drawings and design calculations signed and stamped by a structural engineer, confirming the structural capacity of the Work.
  - .5 All portions of Work presented in the shop drawings mentioned in the previous point, which are not described in the plans and specifications such as the concrete bases for the poles that could be required to ensure stability of the Work.
  - .6 CSA approval, if applicable, special authorization from the *Régie du bâtiment* for outdoor installation of this type of socket, shop drawings of the cabinet and components.
  - .7 Incidental expenses.

## **2.5 DIVISION 32 – LANDSCAPING**

- .1 Marking of paved surfaces, including the following elements:

- .1 Cleaning of surfaces to mark.
- .2 Specialized labour.
- .3 Materials.
- .4 Materials and equipment required for pavement markings: stop lines, other markings (arrows) and pedestrian crosswalk.
- .5 Transport of materials.
- .6 Incidental expenses.

**This item is paid on a prorated basis according to progress of Work.**

**Part 3 Description of items in the unit price table – Part B**

**3.1 DIVISION 02 – EXISTING CONDITIONS**

- .1 Existing farm fencing to remove
  - .1 This item is measured for payment per linear metre (m).
    - .1 Machinery and labour necessary for the task.
    - .2 Transportation.
    - .3 Disposal.
    - .4 Incidental expenses.
- .2 Existing asphalt pavement to remove
  - .1 This item will be measured for payment per square metre (m<sup>2</sup>) of asphalt pavement actually removed, regardless of depth of the layer of material removed.
    - .1 Operations required for removal.
    - .2 Transportation.
    - .3 Disposal.
    - .4 Incidental expenses.
- .3 Tree to salvage
  - .1 This item is measured for payment per unit, according to the actual number of trees salvaged and transplanted.
    - .1 Management to find location(s) for planting.
    - .2 Uprooting the tree with specialized machinery.
    - .3 Materials required for transplanting.
    - .4 Transplanting work.
    - .5 Tree maintenance.
    - .6 Incidental expenses.

**3.2 DIVISION 10 – SPECIAL WORK**

- .1 Small signs and posts to relocate
  - .1 This item is measured for payment per unit price.
    - .1 Removal of the sign, including its post, for relocation.

- .2 Installation of the sign and post in new location as indicated on the plans or as directed by Departmental Representative.
- .3 Supply of new accessories if required by Departmental Representative.
- .4 Incidental expenses.

### **3.3 DIVISION 26 – ELECTRICAL**

- .1 6 AWG, aluminum NS75 FT1 triplex cable
  - .1 This item is measured for payment per linear metre (m).
    - .1 Supply of all materials and equipment (triplex cable including two insulated conductors approved for use in the sun and a support conductor, hardware and accessories, etc.).
    - .2 Installation, including connection and identification.
    - .3 Labour.
    - .4 Electric signal and component tests.
    - .5 Incidental expenses.

### **3.4 DIVISION 31 – EARTHWORK**

- .1 Class 2 excavation
  - .1 This item is measured for payment per cubic metre (m<sup>3</sup>).
    - .1 Excavation and stockpiling of topsoil on-site.
    - .2 Additional excavation (other than topsoil), as required.
    - .3 Grading of sub-grade.
    - .4 Reuse including spreading and compaction of additional excavated materials if backfilling is required.
    - .5 Loading and hauling of additional excavated materials, if required.
    - .6 Disposal of additional excavated materials, if required.
    - .7 Incidental expenses.
- .2 Compactable borrow material
  - .1 This item is measured for payment per cubic metre (m<sup>3</sup>).
    - .1 Supply of materials.
    - .2 Trial section, if required.
    - .3 Loading and hauling.
    - .4 Spreading and compaction.
    - .5 Incidental expenses.
- .3 100-200 mm rip-rap for stone protection with geotextile.
  - .1 This item is measured for payment per square metre (m<sup>2</sup>).
    - .1 Excavation required for placement of rip-rap.
    - .2 Preparation of surface to be covered.
    - .3 Supply of materials including geotextile.
    - .4 Installation.

.5 Incidental expenses.

**3.5 DIVISION 32 – LANDSCAPING**

.1 MG-112 sub-grade

.1 This item is measured for payment per cubic metre (m<sup>3</sup>).

.1 Supply of granular material.

.2 Spreading and compaction of materials.

.3 Trial section, if required.

.4 Incidental expenses.

.2 MG-20 base

.1 This item is measured for payment per cubic metre (m<sup>3</sup>).

.1 Supply of granular material.

.2 Spreading and compaction of materials.

.3 Trial section, if required.

.4 Incidental expenses.

.3 20 mm clean stone

.1 This item is measured for payment per cubic metre (m<sup>3</sup>).

.1 Supply of granular material.

.2 Spreading.

.3 Incidental expenses.

.4 Asphalt pavement

.1 This item is measured for payment per metric ton (MT) of asphalt concrete actually incorporated in the structure.

.2 According to type of mixture.

.1 Saw cuts.

.2 Preparation and cleaning of surface to recover.

.3 Supply and spreading of tack coat.

.4 Supply and placement of pavement.

.5 Joints.

.6 Compaction of pavement.

.7 Incidental expenses.

.5 Cast-in-place concrete curb

.1 This item is measured for payment per linear metre (m).

.1 Preparation and construction of foundation made of granular material.

.2 Installation of formwork.

.3 Supply and placement of concrete.

.4 Concrete finishing.

.5 Saw cuts required for control joints.

.6 Curing.

- .7 Protection of work, including additional fees relating to hot- or cold-weather concrete placement, where required.
    - .8 Incidental expenses.
  - .6 Asphalt pavement sidewalk
    - .1 This item is measured for payment per square metre (m<sup>2</sup>), according to total area of paved surfaces when work is complete.
      - .1 Surface preparation after excavating topsoil.
      - .2 Supply and hauling of granular material and asphalt pavement.
      - .3 Preparation of base made of granular material.
      - .4 Placement of asphalt pavement.
      - .5 Transitions to Route de Vétérans and existing bicycle path.
      - .6 Backing up edge of pavement, when required.
      - .7 Incidental expenses.
  - .7 Erasing of marking
    - .1 This item is measured for payment per linear metre (m) of lines actually erased to complete the work.
      - .1 Erasing of marking.
      - .2 Cleaning work area.
      - .3 Disposal of waste.
      - .4 Incidental expenses.
  - .8 H-1 hydraulic seeding
    - .1 This item is measured per square metre (m<sup>2</sup>) of surface area actually seeded.
      - .1 Preparation of surfaces to sod, including disposal of materials in place, regardless of their nature.
      - .2 Spreading of stockpiled topsoil, if required.
      - .3 Supply of materials.
      - .4 Installation.
      - .5 Maintenance for period stipulated in specifications.
      - .6 Incidental expenses.
  - .9 Sod
    - .1 This item is measured for payment per square metre (m<sup>2</sup>).
      - .1 Preparation of surfaces to sod, including disposal of materials in place, regardless of their nature.
      - .2 Spreading of stockpiled topsoil.
      - .3 Supply and placement of sod.
      - .4 Supply and spreading of a rooting fertilizer.
      - .5 Supply and installation of stakes and fencing, where required.
      - .6 Rolling and watering of grass until it takes root.
      - .7 Maintenance for period stipulated in specifications, including mowing.

- .8 Incidental expenses.
  - .10 Ditch re-grading
    - .1 This item is measured for payment per linear metre (m).
      - .1 Excavation and grading.
      - .2 Loading and hauling.
      - .3 Disposal, if required.
      - .4 Incidental expenses.
    - .11 Cleaning of the ditch
      - .1 This item is measured for payment per linear metre (m).
        - .1 Excavation to clean ditch.
        - .2 Loading and hauling.
        - .3 Disposal.
        - .4 Incidental expenses.
- 3.6 DIVISION 33 – UTILITIES**
- .1 RCP or HDPE culvert, 300 mm in diameter
    - .1 This item is measured for payment per linear metre (m).
      - .1 Supply of all materials, including mitred ends, where required.
      - .2 Trench excavation.
      - .3 Supply and placement of bedding, including compaction.
      - .4 Placement of culvert.
      - .5 Supply and placement of cover, including compaction.
      - .6 Incidental expenses.

**Part 4 Products (N/A)**

**Part 5 Execution (N/A)**

**END OF SECTION**



**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 32 11 16.01 – Granular Sub-Base  
Section 32 12 16 – Asphalt Paving  
Section 32 16 00 – Curbs, Gutters and Sidewalks  
Section 33 42 13 – Pipe Culverts
- .2 Special requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under the following specification sections.
  - .1 Section 32 11 16.01 – Granular Sub-Base
  - .2 Section 32 12 16 – Asphalt Paving
  - .3 Section 32 16 00 – Curbs, Gutters and Sidewalks
  - .4 Section 33 42 13 – Pipe Culverts

**1.2 APPOINTMENT AND PAYMENT**

- .1 Departmental Representative will appoint and pay for services of testing laboratory except as follows:
  - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
  - .2 Inspection and testing performed exclusively for Contractor's convenience.
  - .3 Testing, adjustment and balancing of conveying systems, as well as electrical equipment and systems.
  - .4 Mill tests and certificates of compliance.
  - .5 Tests specified to be carried out by Contractor under supervision of Departmental Representative.
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.

**1.3 CONTRACTOR'S RESPONSIBILITIES**

- .1 Provide labour, equipment and facilities to:
  - .1 Allow access to Work for inspection and testing.
  - .2 Facilitate inspections and tests.
  - .3 Make good Work disturbed by inspection and testing.
  - .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
- .2 Notify Departmental Representative a minimum of forty-eight (48) hours in advance of operations to allow for assignment of laboratory personnel and scheduling of tests.

- .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Departmental Representative.

**Part 2            Products (N/A)**

**Part 3            Execution (N/A)**

**END OF SECTION**

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1        Section 01 32 16.19 – Construction Progress Schedules – Bar (GANTT) Chart.

**1.2            ADMINISTRATIVE PROCEDURES**

- .1        Schedule project meetings as Work progresses. Hold meetings every two (2) weeks. Ensure all responsibilities are fulfilled.
- .2        Departmental Representative will provide written notice at least five (5) days prior to a meeting.
- .3        Meetings in addition to statutory meetings may be convened and held in the field office.
- .4
- .5        These meetings will be presided over by Departmental Representative.
- .6        Minutes for these meetings will be prepared by Departmental Representative and include all questions, important decisions and actions undertaken by various parties.
- .7        Departmental Representative will copy and distribute minutes to participants and relevant parties who were absent within seven (7) days after meeting.
- .8        Contractor, subcontractor and supplier representatives who attend project meetings are permitted and authorized to act on behalf of parties they represent.

**1.3            PRE-CONSTRUCTION MEETING**

- .1        Within fifteen (15) days after Contract award, a meeting of parties in Contract will be held to discuss and define administrative procedures and responsibilities.
- .2        Departmental Representative or senior representatives of Department, Contractor and supervisors will be in attendance.
- .3        Departmental Representative will establish time and location of meeting and notify parties involved at least five (5) days before meeting.
- .4        Elements to send to Departmental Representative at start-up meeting:
  - .1        Appointment of official representative of participants in Work.
  - .2        Work Schedule, in accordance with Section 01 32 16.19 – Construction Progress Schedules – Bar (GANTT) Chart.
  - .3        Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 – Submittal Procedures.
  - .4        Requirements pertaining to temporary facilities, construction signage, offices, storage and reserved areas as well as fencing, if required, in accordance with Section 01 52 00 – Construction Facilities.
  - .5        Site security in accordance with Section 01 56 00 – Temporary Barriers and Enclosures.
  - .6        Prevention Program in accordance with Section 01 35 29.06 – Health and Safety Requirements.

- .7 Insurances, transcript of policies.

#### **1.4 PROGRESS MEETINGS**

- .1 Departmental Representative or senior representatives of Department, Contractor and supervisors will be in attendance.
- .2 Parties will be notified at least five (5) days before meetings.
- .3 Agenda items discussed during Progress Meetings may include (non-exhaustive list):
  - .1 Review and approval of minutes from previous meeting.
  - .2 Review of Work progress since previous meeting.
  - .3 Field observations, problems and conflicts.
  - .4 Problems impeding construction schedule.
  - .5 Corrective measures and procedures to get back on schedule.
  - .6 Construction schedule revisions.
  - .7 Review of progress schedule, during succeeding Work period.
  - .8 Review submittal schedules; process acceleration as needed.
  - .9 Maintenance of quality standards.
  - .10 Review of proposed changes and possible affect on Work Schedule and completion date.
  - .11 Health and safety.
  - .12 Environmental protection.
  - .13 Other business.

**Part 2 Products (N/A)**

**Part 3 Execution (N/A)**

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Not used.

**1.2 DEFINITIONS**

- .1 Activity: Distinct element of Work performed during course of a project. An activity normally has an expected duration, expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar chart (Gantt chart): graphic representation of project schedule information. In a typical bar chart, activities or other Project elements are listed down the left side of the chart, dates are shown across the top, and activity durations are shown as date-placed horizontal bars. Generally, a bar chart is derived from a commercially available computerized project management system.
- .3 Baseline: Original, approved plan (for a project, Work package, or activity) that takes into account approved Project scope changes.
- .4 Construction work week: Five (5) day work week, from Monday to Friday, that defines working days for the purposes of the bar (Gantt) chart.
- .5 Duration: Number of work periods required (not including holidays or other non-working periods) to complete activity or any other project element. Usually expressed as working days or work weeks.
- .6 Master plan: Summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: Significant event in project; usually corresponds to completion of major deliverable.
- .8 Project schedule: Dates set for performing activities and meeting milestones. Dynamic, detailed schedule of tasks or activities that must be accomplished to meet Project milestones. 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 managed by Departmental Representative to monitor execution of work in relation to established milestones.

**1.3 REQUIREMENTS**

- .1 Ensure master plan and detail schedules are realistic and remain within specified Contract time period.
- .2 Master plan to include completion of Work in accordance with prescribed milestones and time period.
- .3 Limit activity to maximum of approximately ten (10) working days, to allow for progress reporting.

- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.
- .5 Clearly indicate critical path on Work schedule.

#### **1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 No later than seven (7) working days after Contract award or at the start-up meeting, submit Work schedule to Departmental Representative in form of a bar chart (Gantt chart) to be used as the master plan, to plan and monitor work, and to produce progress reports.
- .3 Schedule to include planning for all work to be performed, including content of general requirements, work to demolish existing structures, electrical (lighting), earthwork, landscaping, utilities, drainage work, site restoration as well as all related work.
- .4 Submit an electronic version of original baseline schedule source file and PDF to Departmental Representative, and again whenever Work schedule is revised.
- .5 Baseline Work schedule.
  - .1 Submit a project schedule at start of Project that will serve as baseline schedule to monitor progress and extend deadlines if necessary.
  - .2 Ensure Work schedule complies with all characteristics stipulated by Departmental Representative. Departmental Representative will issue a notice of compliance or a detailed list of corrections to implement.
  - .3 Once notice of compliance has been issued, Work schedule will be considered as baseline Work schedule.
  - .4 Detail and group activities together on schedule in a structured manner. Include at least following groups in structure:
    - .1 Project management (administration, mobilization, obtaining permits, approval of plans and methods, demobilization).
    - .2 Procurement (award of subcontracts, preparation of shop drawings, samples, review and approval of drawings, fabrication and delivery).
    - .3 Construction (per activity, scheduling, stakeholder, approval and supervisory lead time).
  - .5 Submit updated schedule at each site meeting, indicating dates on which unforeseen site conditions arose, modifications were requested by Departmental Representative or any other reasons requiring the baseline schedule to be modified. Submit explanation of schedule modifications to Departmental Representative for confirmation.

#### **1.5 PROJECT MILESTONES AND TIMELINE**

- .1 Project milestones form interim targets for Work schedule.
- .2 Substantial performance must be declared within seventy (70) working days after Contract award.

- .3 Lighting system commissioning work may be identified on list of deficiencies if connection to utility company network has not been completed.
- .4 Final completion of Work must be declared within thirty (30) days after substantial completion date.

#### **1.6 MASTER PLAN**

- .1 Structure schedule as bar (Gantt) chart to allow orderly planning, organizing and execution of Work.
- .2 Departmental Representative will examine schedule and return comments to Contractor within no more than five (5) business days.
- .3 Revise impractical schedule and resubmit within five (5) working days after receiving comments.
- .4 Accepted revised schedule will become master plan and be used as baseline for updates.

#### **1.7 PROJECT SCHEDULE**

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Work schedule must be outlined with activities that correspond to a specific trade. Each activity must refer to a trade and be limited to a maximum of ten (10) working days.
- .3 Ensure detailed project schedule at least includes steps corresponding to activities below:
  - .1 Contract award.
  - .2 Site start-up meeting.
  - .3 Shop drawings, samples.
  - .4 Permits.
  - .5 Lead time required for approvals arising from specification requirements.
  - .6 Site mobilization and preparation.
  - .7 Site organization.
  - .8 Demolition of existing structures.
  - .9 Clearing and stump removal.
  - .10 Earthwork and levelling work.
  - .11 Installation of lampposts with overhead electrical power supply.
  - .12 Curbs and sidewalks.
  - .13 Sub-grade, sub-base and placement of asphalt pavement.
  - .14 Topsoil and seeding/sodding of surfaces.
  - .15 Signage.
  - .16 Marking.
  - .17 Drainage work.
  - .18 Partial Interim Certificate.
  - .19 Correction of deficiencies and final clearance.

## **1.8 PROJECT SCHEDULE REPORTING**

- .1 Update project schedule every two (2) weeks to include changes to activities, completion of activities and 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 Incorporate modifications made to Work as a result of change orders issued by Departmental Representative or unforeseen conditions in project Work schedule. Rearrange Work schedule to avoid additional delays. If additional, inevitable delays occur, immediately notify Departmental Representative and provide an updated Work schedule indicating impact on project's critical path.

## **1.9 PROJECT MEETINGS**

- .1 Discuss project schedule at regular site meetings, identify activities that are behind schedule and plan for measures to compensate for delays. 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 remedial measures will be discussed and negotiated.

**Part 2 Products (N/A)**

**Part 3 Execution (N/A)**

**END OF SECTION**

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1      All sections included in these specifications.

**1.2            ADMINISTRATIVE PROCEDURES**

- .1      At start-up meeting, Departmental Representative will provide a list of documents, permits and samples to submit for review.
- .2      Obtain all authorizations and permits as required by applicable regulations, laws and standards.
- .3      Submit submittals listed to Departmental Representative for review. Submit promptly and in orderly sequence to prevent 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 accepted.
- .4      Do not proceed with Work affected by submittal until review is complete.
- .5      Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .6      Where items are not manufactured or information is not produced in SI Metric units, converted values are acceptable.
- .7      Review submittals prior to submission to Departmental Representative. This review is to ensure that necessary requirements have been determined and verified, and that each submittal has been checked and found to be compliant 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.
- .8      Notify Departmental Representative in writing, at time of submission, of deviations from Contract document requirements, stating reasons for deviations.
- .9      Verify field measurements and affected adjacent Work are co-ordinated.
- .10     Contractor's responsibility for errors and omissions is not relieved by Departmental Representative's review of submittals.
- .11     Contractor's responsibility for deviations in submittals from Contract document requirements is not relieved by Departmental Representative's review.
- .12     Keep one reviewed copy of each submission on site.

**1.3            SHOP DRAWINGS AND PRODUCT DATA**

- .1      The term "shop drawings" refers to drawings, diagrams, illustrations, schedules, performance charts, brochures and other data to be provided by Contractor to illustrate details of a portion of Work.
- .2      Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec, Canada.
- .3      Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion

of Work. Where articles or equipment attach or connect to other structures or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent structures or items will be supplied and installed. Indicate cross references to plans and specifications.

- .4 Allow five (5) days for Departmental Representative to examine each set of submittals.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change contract price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 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.
- .7 Include two (2) copies of transmittal letter with submittals, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity submitted of each drawing, product data and sample.
  - .5 Other relevant data.
- .8 Submittals to include or indicate the following:
  - .1 Date prepared and revision dates.
  - .2 Project title and number.
  - .3 Names and addresses of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative, certifying approval of submittals, verification of field measurements and compliance with Contract documents.
  - .5 Relevant details pertaining to portions of Work involved:
    - .1 Materials and fabrication details.
    - .2 Layout or configuration, showing dimensions, including identified field dimensions and clearances.
    - .3 Setting or erection details.
    - .4 Characteristics such as power, flow rate or capacity.
    - .5 Performance attributes.
    - .6 Reference standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent structures.

- .9 Distribute copies of shop drawings and product data after Departmental Representative's review.
- .10 Submit one (1) electronic copy of shop drawings as required in technical sections of specifications.
- .11 If shop drawings will not be prepared due to standardized manufacture of product, submit one (1) electronic copy of product data sheets or brochures as required in technical sections of specifications and by Departmental Representative.
- .12 Submit one (1) electronic copy of test reports as required in technical sections of specifications and by Departmental Representative.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
  - .2 Testing must have been within three (3) years of date of contract award.
- .13 Submit one (1) electronic copy of certificates as required in technical sections of specifications and by Departmental Representative.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after Contract award, complete with project name.
- .14 Submit one (1) electronic copy of manufacturer's instructions as required in technical sections of specifications and by Departmental Representative.
  - .1 Pre-printed material describing installation of products, systems or materials, including special notices and safety data sheets indicating impedances, hazards and safety precautions to implement.
- .15 Submit one (1) electronic copy of manufacturer's field report as required in technical sections of specifications and by Departmental Representative.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Submit one (1) electronic copy of operation and maintenance data as required in technical sections of specifications and by Departmental Representative.
- .18 Delete information not applicable to project.
- .19 Supplement standard information to provide details applicable to project.
- .20 If, upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections were made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy(ies) will be returned and corrected shop drawings must be re-submitted according to indications above before fabrication and installation of Work may proceed.
- .21 Sole purpose of Departmental Representative's review of shop drawings is to ascertain compliance with general concept.

- .1 This review does not mean that the Department approves detailed design presented in shop drawings. Contractor remains responsible, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility to meet requirements of construction and Contract documents.
- .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.
- .3 Allow seven (7) working days for Departmental Representative to review shop drawings.

#### **1.4 SAMPLES**

- .1 Submit samples in duplicate for review, as required in respective technical sections of specifications. Label samples with origin and intended use.
- .2 Ship samples prepaid to Departmental Representative.
- .3 Notify Departmental Representative in writing, at time of submission, of deviations in samples from requirements of Contract documents.
- .4 Adjustments made to samples by Departmental Representative are not intended to change Contract price. If adjustments do affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .5 Make changes to samples as required by Departmental Representative, consistent with requirements stipulated in Contract documents.
- .6 Reviewed and accepted samples will become standard of workmanship and material quality against which finished work/materials will be verified.

#### **1.5 MOCK-UPS**

- .1 Construct mock-ups in accordance with Section 01 45 00 – Quality Control.

#### **1.6 CERTIFICATES AND TRANSCRIPTS**

- .1 Immediately after Contract award, submit documents required by *Commission des normes, de l'équité, de la santé et sécurité du travail*.
- .2 Immediately after Contract award, submit documents required by *Commission de la construction du Québec*.
- .3 Immediately after Contract award, submit copies of insurance policies. Products (N/A)

#### **Part 2 Execution (N/A)**

**END OF SECTION**

**Part 1 General**

**1.1 GENERAL**

- .1 In this section, the term “site” refers to all facilities located on the site where construction is taking place (the construction site itself, buildings, accesses, infrastructures, parking areas, loading/unloading docks, etc.).

**1.2 RELATED REQUIREMENTS**

- .1 Section 01 11 01 – General Work Information

**1.3 REFERENCE STANDARDS**

- .1 Health Canada – Workplace Hazardous Materials Information System (WHMIS)
  - .1 Safety Data Sheets (SDS).
- .2 Province of Quebec:
  - .1 Act Respecting Occupational Health and Safety (CQLR c S-2.1).
  - .2 Safety Code for the Construction Industry (CQLR c S-2.1, r 4).

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit Prevention Program specific to construction site to Departmental Representative and CNESST at least ten (10) days prior to starting work, as stipulated in article entitled, “General Requirements.”
- .3 Departmental Representative will review site-specific Prevention Program and return observations within ten (10) working days following receipt. Revise Prevention Program if needed and re-submit to Departmental Representative no more than five (5) days following receipt of observations from Departmental Representative. Departmental Representative reserves right to deny authorization to start work on site until Prevention Program content is acceptable. Update Prevention Program and re-submit to Departmental Representative if scope of work changes, work methods will differ from originally planned methods, or under any other new condition, as applicable.
- .4 Departmental Representative’s review of final Prevention Program should not be construed as approval of such, and does not diminish Contractor’s general health and safety responsibilities during construction.
- .5 Submit weekly reports to Departmental Representative on health and safety inspections conducted on site by Contractor’s authorized representative.
- .6 Submit one (1) copy of any inspection report or notice of correction or recommendations issued by federal and provincial government health and safety inspectors to Departmental Representative within twenty-four (24) hours of receipt.
- .7 Submit an investigation report to Departmental Representative within twenty-four (24) hours of any accident resulting in injury or incident that brings to light a potential hazard.  
Include at least the following in investigation report:

- .1 Date, time and place of accident.
- .2 Name of subcontractor involved in accident.
- .3 Number of people involved and condition of injured.
- .4 Identification of witness(es).
- .5 Detailed description of tasks being performed at time of accident.
- .6 Equipment being used to perform tasks at time of accident.
- .7 Corrective actions implemented immediately following accident.
- .8 Accident causes.
- .9 Preventive measures implemented to prevent recurrence of similar accidents.
- .8 Submit WHMIS safety data sheets to Departmental Representative, in accordance with Section 01 33 00 – Submittal Procedures. Keep one copy of each safety data sheet on site.
- .9 Submit an Emergency Response Plan to Departmental Representative at same time as Prevention Program. Include all elements stipulated in “General Requirements” article of this section in Emergency Response Plan.
- .10 Send Departmental Representative a copy of construction workers’ training certificates, most specifically the following (as applicable):
  - .1 First aid in the workplace and cardiopulmonary resuscitation (CPR).
  - .2 Lockout/Tag out (required for all work requiring lockout/tag out).
  - .3 Any other training required under regulations or Prevention 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.

- .11 Engineer’s plans and certificates of compliance: submit to Departmental Representative and *Commission des normes, de l’équité, de la santé et de la sécurité du travail* (CNESST) a copy, signed and sealed by an 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), any other legislation or regulation, or any other clause in specifications or Contract. Submit a certificate of compliance signed by engineer after installing temporary structure for which plans were prepared, before anyone uses it. Keep a copy of these documents available on site at all times.

## **1.5 FILING OF NOTICE OF CONSTRUCTION SITE OPENING**

- .1 Send written notice of construction site opening to the CNESST. Send Departmental Representative a copy of notice of opening and acknowledgement of receipt from the CNESST.

When all work is complete, send notice of construction site closing to the CNESST, with a copy to Departmental Representative.
- .2 Assume the role of Principal Contractor at all times within construction site boundaries and wherever work is to be performed within the context of this Project. Contractor acknowledges Principal Contractor’s liability and identifies itself as such in the notice of construction site opening submitted to the CNESST.

- .3 Contractor agrees to install proper site separation and identification in order to maintain time and space at all times throughout duration of project.

## **1.6 SAFETY ASSESSMENT**

- .1 Perform site specific safety hazard assessment related to project.

## **1.7 MEETINGS**

- .1 Schedule and lead a health and safety meeting with Departmental Representative prior to starting Work.
- .2 Ensure a representative with decision-making authority attends all meetings pertaining to construction site health and safety.
- .3 If twenty-five (25) or more workers will be on construction site at any given time during Work, set up a construction site committee and hold meetings as required by the *Safety Code for the Construction Industry* (S-2.1, r 4). Submit a copy of construction site committee meetings to Departmental Representative within five (5) days of meeting date.

## **1.8 REGULATORY REQUIREMENTS**

- .1 Perform Work in accordance with Section 01 41 00 – Regulatory Requirements.
- .2 Comply with all laws, regulations, and standards applicable to execution of Work.
- .3 Comply with specified standards and regulations to ensure safe operations at site containing hazardous or toxic materials.
- .4 Always use most recent version of standards cited in the *Safety Code for the Construction Industry* (S-2.1, r 4), notwithstanding the date indicated in this code.

## **1.9 COMPLIANCE REQUIREMENTS**

- .1 Comply with an *Act respecting Health and Safety* (R.S.Q., c. S-2.1) and the *Safety Code for the Construction Industry* (c. S-2.1, r 4), in addition to all requirements stipulated in these specifications.

## **1.10 RESPONSIBILITIES**

- .1 Accept and perform all tasks and requirements normally expected of Principal Contractor under an *Act respecting occupational health and safety* (CQLR c S-2.1) and the *Safety Code for the Construction Industry* (S-2.1, r 4).
- .2 Assume responsibility for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .3 Regardless of size and location of construction site, clearly and physically identify site boundaries and comply with specific requirements set out in applicable regulations. Submit proposed methods to delineate construction site to Departmental Representative.
- .4 Comply with and enforce employees' compliance with safety requirements identified in Contract documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Prevention Program.

## **1.11 WORK PERFORMED BY EXTERNAL CONTRACTORS**

- .1 Implement whatever measures necessary to protect health and safety of external contractors not bound to Contractor by contract but mandated by Departmental Representative to perform certain work. In return, external contractors are obligated to submit to Contractor's authority (as principal contractor). Each external contractor will be required to sign a subordination agreement to that effect with Contractor, which will be submitted to Departmental Representative before external contractors begin any work. (Refer to wording in article entitled, "OHS Subordination Agreement.")
- .2 Take into consideration that other work may be carried out near the site. Coordinate operations with other party to minimize health and safety risks.

## **1.12 GENERAL REQUIREMENTS**

- .1 Prior to starting Work, prepare a site-specific Prevention Program based on prior assessment of hazards/risks, in accordance with articles entitled, "Safety Assessment" and "Risks Inherent to Work Site" in this Section. Implement this Program and ensure full adherence thereto until all construction site staff has been demobilized. Ensure Prevention Program takes into account all specific characteristics of the project and covers all work performed on the site.
- .2 Include at least the following elements in the Prevention Program:
  - .1 Company's Health and Safety Policy.
  - .2 Description of Work stages.
  - .3 Total cost of Work, schedule and manpower curve.
  - .4 Organization chart of health and safety responsibilities.
  - .5 Physical and material organization of site.
  - .6 Identification of risks for each Work stage, corresponding preventive measures and conditions for application.
  - .7 Identification of preventive measures associated with site-specific inherent risks indicated in article entitled, "Risks Inherent to Work Site."
  - .8 Identification of preventive measures relating to employee and/or public health and safety at the work site, as stipulated in article entitled, "Specific Requirements for Health and Safety of Occupants and the Public."
  - .9 Required training.
  - .10 Procedure to follow in event of accident/injury.
  - .11 Written commitment from all stakeholders to comply with this Prevention Program.
  - .12 Site inspection checklist based on preventive measures.
  - .13 Emergency Response Plan containing at least the following:
    - .1 Site evacuation procedure.
    - .2 List of emergency resources (police, fire, ambulance, etc.).
    - .3 List of people responsible on site.
    - .4 List of first responders on site.

- .5 Communication organizational chart (including the person responsible for the site and the Departmental Representative).
  - .6 Training required for those responsible for applying it.
  - .7 Any other information necessary given site characteristics.
- Departmental Representative will provide site evacuation procedure to Contractor if necessary; Contractor will combine evacuation procedure with site procedure and submit to Departmental Representative.
- .3 Departmental Representative may respond in writing where deficiencies or concerns are noted, and may request re-submission with correction of deficiencies or concerns.
  - .4 In addition to Prevention Program, develop and submit specific written procedure to Departmental Representative for any work featuring elevated risks of accidents (e.g.: demolition procedure, site-specific procedure, lifting plan, confined space entry procedure, power interruption procedures, etc.), or as requested by Departmental Representative.
  - .5 Plan and organize work to favour elimination of risks at the source or collective protection, thereby minimizing need for personal protective equipment.
  - .6 Any equipment, tool or means of protection that cannot be installed or used without compromising the health and safety of workers or public is deemed to be inadequate for work to perform.
  - .7 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.
  - .8 Ensure all inspections (daily, periodic, annual, etc.) of mechanical equipment or equipment used to lift people or materials as required by standards in force are properly conducted, and submit a copy of inspection certificates at Departmental Representative's request.
  - .9 Departmental Representative may, at any time and when a defect or risk of accident is suspected, order immediate shutdown of any equipment and require it be inspected by a specialist of their choice.
  - .10 Consult with Departmental Representative to determine location for storing gas/fuel cylinders and tanks on site.

### **1.13 RISKS INHERENT TO WORK SITE**

- .1 In addition to risks associated with tasks to perform, employees mandated with Work on construction site will be exposed to the following risks, inherent to specific location where Work will be performed.

At work site, there is the potential for:

- .1 Road traffic nearby.

- .2 Overhead power lines.
- .3 Underground utilities (electrical, gas, steam, water, etc.).
- .4 Trees and landscaping to preserve and protect.
- .5 Laboratories.
- .6 Trees to preserve and protect.

Perform a risk assessment on-site to validate this information and whether other risks are present. Include all identified risks in Prevention Program.

#### **1.14 SPECIFIC REQUIREMENTS FOR HEALTH AND SAFETY OF OCCUPANTS AND PUBLIC**

- .1 Site where Work will take place is not generally occupied by the public. However, there may be pedestrian traffic. While these people may not have access to Contractor's work site, the following specific requirements must still be taken into account to ensure employees' and/or the public's protection:
  - .1 Identify construction site with signs.
  - .2 Prevent access to construction site.

Include these requirements in Prevention Program, along with all other measures planned to ensure health and safety of public present on site.

#### **1.15 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. Make whatever modifications necessary to Prevention Program and implement necessary safety precautions so Work can resume.

#### **1.16 HEALTH AND SAFETY OFFICER**

- .1 Appoint a competent person as health and safety officer, regardless of construction site size or number of workers present. Health and safety officer must be on site at all times and able to implement whatever measures necessary to ensure health and safety of people and property on work site and immediate surroundings that could be affected by the Work. Submit name of Health and Safety Officer to Departmental Representative prior to starting Work.

#### **1.17 POSTING OF DOCUMENTS**

- .1 Ensure applicable documents, articles, notices and orders are posted in conspicuous location on site in accordance with the acts and regulations of Quebec, and in consultation with Departmental Representative.
- .2 At minimum, post the following information and documents in a location easily accessible by workers:
  - .1 Notice of opening of construction site.

- .2 Principal contractor's identification.
- .3 Company's Occupational Health and Safety Policy.
- .4 Site-specific Prevention Program.
- .5 Emergency Response Plan.
- .6 Minutes of worksite committee meetings.
- .7 Names of worksite committee representatives.
- .8 List of first responders on site.
- .9 Intervention and correction reports issued by the CNESST.

#### **1.18 INSPECTIONS AND CORRECTION OF NON-COMPLIANCES**

- .1 Inspect work site, complete construction site inspection checklist and submit to Departmental Representative in accordance with article entitled, "Action and Informational Submittals" in this Section.
- .2 Immediately implement necessary measures to correct any situations deemed non-compliant during said inspections or those observed by authority having jurisdiction, Departmental Representative or agent.
- .3 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .4 Grant health and safety officer authority needed to order work to stop or resume as deemed necessary or advisable for health and safety reasons. Health and safety officer shall ensure that the health and safety of the public and construction site employees, as well as environmental protection always take precedence over cost- or work schedule-related concerns.
- .5 Departmental Representative or his agent may suspend Work if non-compliance of health and safety regulations is not corrected. Without limiting the foregoing, Departmental Representative may also suspend work at any time if there is a perceived risk or hazard to environment or health and safety of site employees or the public.

#### **1.19 VIOLENCE PREVENTION**

- .1 Management of health and safety on Public Works and Government Services Canada work sites includes implementing measures to protect psychological health of everyone who accesses site where Work takes place. Thus, in addition to physical violence, verbal abuse, intimidation and harassment will not be tolerated on site. Anyone who engages in such behaviour will receive a warning and/or may be permanently expelled from site by Departmental Representative.

#### **1.20 BLASTING**

- .1 Not Used.

#### **1.21 POWDER-ACTUATED DEVICES**

- .1 Not Used.

## **1.22 USE OF PUBLIC ROADWAYS**

- .1 When encroaching on a public roadway is needed for operations or to ensure worker, occupant or public safety (e.g. use of scaffolding, cranes, digging, etc.), obtain and pay for all necessary authorizations and permits from authorities having jurisdiction.
- .2 Install and assume all costs for signs, barricades and any other devices required by relevant regulations to ensure safety of the public and own facilities.

## **1.23 LOCKOUT/TAG OUT**

- .1 When work is performed on equipment powered by electricity or other type of energy, submit a general lockout / tag out procedure to Departmental Representative and ensure it is applied.
- .2 Supervisory employees and other workers involved in work requiring lockout / tag out must have received lockout / tag out training from a recognized agency; submit relevant training certificates to Departmental Representative.
- .3 Before locking out equipment on an occupied site, coordinate required work with site representative if cutting off power sources could impact site operations or occupants.
- .4 Identify a qualified person as responsible for lockout / tag out and ensure that person prepares a lockout / tag out sheet for each piece of equipment to be locked out. Submit lockout / tag out sheet to Departmental Representative at least forty-eight (48) hours prior to start of work for verification by a representative if work is to take place in an existing building. Include at least the following information on lockout/tag out sheet:
  - .1 Description of work to perform.
  - .2 Identification, description and location of circuit and/or equipment to lock out.
  - .3 Identification of power sources supplying the equipment.
  - .4 Identification of each lockout point.
  - .5 Sequence to lockout / tag out equipment and drain residual energy, as well as reverse lockout / tag out sequence.
  - .6 List of lockout / tag out equipment required.
  - .7 Method to verify isolation (zero energy).
  - .8 Name and signature of person who prepared sheet.

Enter all of this information on site representative's form, at Departmental Representative's request.
- .5 At time of lockout/tag out, person responsible must date sheet and ensure that every worker involved in work on locked out circuit or equipment prints and signs their name on sheet.

## **1.24 ELECTRICAL WORK**

- .1 Ensure all electrical work is performed by employees qualified in accordance with relevant provincial regulations regarding professional qualifications and training.
- .2 Contractor shall respect all requirements of standard *CSA Z462 Workplace Electrical Safety Standard*.

- .3 Only work on electrical components when they are de-energized, unless it is not possible to completely disconnect them.
- .4 Comply with all requirements outlined in "Lockout / Tag out" paragraph in this Section.
- .5 Notify Departmental Representative of work that cannot be performed while de-energized and obtain his authorization for such. Contractor shall demonstrate to the Departmental Representative that it is impossible to do the work with de-energized equipment and provide all the information necessary to request and obtain an energized electrical work permit (indicate working procedures, arc flash hazard analysis, protective perimeter, protective equipment, etc.) before the beginning of the work, excluding for the exceptions indicated in standard CSA Z462 *Workplace electrical safety*.
- .6 Include at least the following elements in energized electrical work permit:
  - .1 Description of circuit, equipment and location.
  - .2 Justification for having to work in an energized condition.
  - .3 Description of safe work practices to apply.
  - .4 Results of shock hazard analysis.
  - .5 Limit of protective perimeter against electric shocks.
  - .6 Results of arc flash hazard analysis.
  - .7 Description of arc flash protection boundary.
  - .8 Description of personal protective equipment required.
  - .9 Description of means to limit access to unqualified persons.
  - .10 Proof that an information session has been carried out.
  - .11 Approval signature for energized electrical work (by an authorized person or by Departmental Representative).
- .7 If, for site occupants' operational needs, Departmental Representative requires Contractor to perform energized electrical work, obtain all information necessary to complete an energized electrical work permit (work method, arc flash hazard analysis, flash protection boundary, protective equipment, etc.) and have it signed by Departmental Representative prior to start of work.

**1.25 ASBESTOS EXPOSURE**

- .1 Not used.

**1.26 FUNGAL CONTAMINATION**

- .1 Not used.

**1.27 EXPOSURE TO SILICA**

- .1 Not used.

**1.28 SANDBLASTING**

- .1 Not used.

## **1.29 EXPOSURE TO ANIMAL FECAL DROPPINGS**

Prior to starting any work where workers are likely to be in contact with materials contaminated by animal fecal droppings:

- .1 Provide a written procedure that meets requirements set out in the *Code de sécurité pour les travaux de construction*, S-2.1, r.4 (Safety code for the construction industry), as well as those in the following documents:
  - .1 “*Des fientes de pigeons dans votre lieu de travail : méfiez-vous*” (Pigeon droppings in your workplace: Beware), published by the CNESST (French only: <https://arpac.org/wp-content/uploads/2018/04/fientes-pigeons.pdf>)
  - .2 “*Ces pigeons empoisonneurs*” (Poisonous pigeons) published by the APSAM (French only: <https://www.apsam.com/sites/default/files/docs/publications/revue/vol13-no2p2.pdf>)
  - .3 The PSPC reference that addresses pigeon/bat droppings entitled, “Management and Prevention of Infectious Diseases on Construction Sites” (<https://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/conn-know/securite-safety/infectieuses-infectious-eng.html>)
- .2 Demonstrate to Departmental Representative that all materials and equipment necessary to follow the procedure and perform Work safely are on hand.

## **1.30 RESPIRATORY PROTECTION**

- .1 Not used.

## **1.31 FALL PROTECTION**

- .1 Plan and organize work to eliminate fall risks at source or ensure collective protection, thereby minimizing use of personal protective equipment. When personal fall protection is required, ensure workers use a safety harness that meets CAN/CSA Z-259.10-M90. Do not use safety belts as fall protection.
- .2 Ensure anyone who uses a lifting platform (scissor lift, telescoping mast, articulated mast, rotating mast, etc.) has received appropriate training.
- .3 Safety harnesses are required whenever a lifting platform with telescoping, articulating or rotating mast is used.
- .4 Always define the danger zone boundary around a lifting platform.
- .5 Ensure anyone working within two (2) metres of a hazard of falling three (3) or more metres uses a safety harness in accordance with regulation requirements, unless there is a guardrail or other device offering equivalent safety.
- .6 Despite regulatory requirements, Departmental Representative may require installation of a guardrail or use of a safety harness in specific situations where there is a risk of falling less than three (3) metres.

**1.32 SCAFFOLDINGS**

- .1 Not used.

**1.33 CONFINED SPACES**

- .1 Not used.

**1.34 EXCAVATION WORK**

In addition to *Code de sécurité pour les travaux de construction* (Safety code for the construction industry) requirements, dig trenches and excavate to the following requirements:

- .1 Fill out the form below and submit it to Departmental Representative before beginning excavation work.
- .2 Submit following documents to Departmental Representative, as appropriate:
  - a) Plans and specifications, signed and sealed by an engineer, of shoring needed for excavation work; or
  - b) Engineer's advice specifying slope of trench wall or excavation.

[illegible]

## 1.35

- .1 Unless otherwise specified, prepare a hoisting plan for all lifting operations done with a crane or a boom truck and submit it to Departmental Representative at least five (5) days before lifting operations begin. At minimum, include information stipulated at end of this article.
- .2 Ensure hoisting plans are signed and stamped by an engineer for operations to lift:

- a) Loads that encroach on a public road.
  - b) Heavy loads or loads with large dimensions.
  - c) Other loads, in accordance with Departmental Representative's requirements.
- .3 In addition to above requirements, plan hoisting operations so as to avoid lifting loads over occupied zones on site. When there is no alternative, hoisting plan must absolutely be signed and stamped by an engineer and must guarantee safety of occupants in that zone; also ensure plan is approved by Departmental Representative. Departmental Representative may, if he deems necessary, require that lifting operation be done at night or on weekends.
- .4 Submit list of hoisting plans anticipated for whole project to Departmental Representative, as soon as work begins on site. Update list as needed if changes occur during Work.
- .5 In addition to mechanical service inspection certificate, ensure annual inspection certificate and crane logbook are kept onboard all cranes and barrier truck cabs.
- .6 Mark off entire lifting zone to prevent unauthorized persons from entering.
- .7 Carefully inspect all slings and lifting accessories and ensure those in poor condition are destroyed and discarded.

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

- Sketch indicating, at minimum, location of crane, surrounding facilities, zone covered by hoisting operations, pedestrian pathways and vehicle routes, security perimeter, etc.
- Weight of loads.
- Dimensions of loads.
- List of hoisting devices and weight of each.
- Total weight lifted.
- Maximum height of obstacles to clear.
- Use of guide cables.
- Type of crane used.
- Crane capacity.
- Boom length.
- Boom angle.
- Crane swing radius.
- Stabilizer deployment.
- Crane capacity usage percentage.
- Confirmation of hoisting equipment verification.

**1.36            HOT WORK**

- .1        Not used.

**1.37            WORK NEAR BODIES OF WATER**

- .1        Not used.

**1.38            WORK NEAR OVERHEAD POWER LINES**

- .1        When there is an overhead power line in construction zone and Contractor chooses to apply paragraph b) of Article 5.2.2 of the Safety Code for the Construction Industry (2.1, r 4), submit a copy of agreement with electrical power company and a copy of work procedure, as required in Article 5.2.2b b) to Departmental Representative prior to starting work associated with these documents.

### **1.39 HEALTH AND SAFETY SUBORDINATION AGREEMENT**

Project: \_\_\_\_\_ Address: \_\_\_\_\_

#### **EXTERNAL CONTRACTOR**

I hereby agree to submit to the authority of (name of the Principal Contractor's business) \_\_\_\_\_, the Principal Contractor for the project indicated above, for the entire duration of our work on the construction site. I confirm that I have reviewed the Principal Contractor's Prevention Program, and I agree to:

- inform my employees of the content of the Principal Contractor's Prevention Program and ensure that its content is complied with at all times;
- apply the Prevention Program that is specific to the activities that we carry out under this project;
- inform the Principal Contractor of my actions or dealings on the construction site and obtain the Principal Contractor's agreement before starting work; and
- follow the health and safety directives provided by the Principal Contractor's representative on the construction site and, depending on requirements, attend training sessions and health and safety meetings organized by the Principal Contractor's representative.

Representative's name: \_\_\_\_\_ Company name: \_\_\_\_\_

Description of work to be done on the construction site: \_\_\_\_\_

Approximate dates of work (start-end): \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

#### **PRINCIPAL CONTRACTOR**

I hereby agree to allow (name of external contractor) \_\_\_\_\_ to perform the work for this project as indicated above and, as Principal Contractor, to take the necessary steps to protect the health and safety of workers on the construction site. Should the Contractor repeatedly refuse or fail to comply with my directives, I agree to inform PWGSC's Departmental Representative of such and to provide documentary evidence of my actions or dealings with the Contractor.

Representative's name: \_\_\_\_\_ Company name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Submit duly completed and signed copy to Departmental Representative.

**END OF SECTION**



**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1        Appendix A – Geotechnical Investigation and Pavement Design.

**1.2            REFERENCE STANDARDS**

- .1        Department of Justice Canada
  - .1        Canadian Environmental Assessment Act (CEAA), 1992, c. 37.
  - .2        Canadian Environmental Protection Act, 1999 (CEPA), c. 33.
- .2        Province of Quebec:
  - .1        Environment Quality Act, CQLR, c Q-2.

**1.3            DEFINITIONS**

- .1        Environmental pollution and damage: presence of chemical, physical, biological elements or agents that adversely affect human health and welfare, unfavourably alter ecological balances important to human life, adversely affect other species important to humans, or degrade environment aesthetically, culturally and/or historically.
- .2        Environmental protection: prevention/control of pollution and disruption of habitat or environment during construction. Prevention of pollution and damage to environment includes protection of soil, water, air, as well as quality of life and biological or cultural resources. It also includes management of visual aesthetics, noise, solid, chemical, gaseous and liquid wastes and other pollutants.

**1.4            ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2        Product data sheets
  - .1        Submit two (2) copies of WHMIS safety data sheets in accordance with Section 01 35 29.06 – Health and Safety Requirements.
- .3        Prior to starting work or delivery of materials and equipment to site, submit Environmental Protection Plan to Departmental Representative for review and approval.
- .4        Include comprehensive overview in Environmental Protection Plan of known or potential environmental issues to resolve during excavation work.
- .5        Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .6        Include the following in Environmental Protection Plan:
  - .1        Names of persons responsible for ensuring adherence to Environmental Protection Plan.

- .2 Names and qualifications of persons responsible for issuing manifests for removal of hazardous waste from Work site.
- .3 Names and qualifications of persons responsible for training site personnel.
- .4 Description of environmental protection training program for personnel.
- .5 Work site plan, showing activities planned in each section.
- .6 Erosion and Sediment Control Plan identifying type and location of measures to be implemented to ensure that control measures comply with federal, provincial, and municipal laws and regulations.
- .7 Drawings indicating locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
- .8 Non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .9 Plan for reusing soil with contamination level greater than MELCC Criteria A. In plan, document locations where soils will be reused, along with quantities. If there will be excess, indicate where these naturally contaminated soils will be disposed of, and estimate quantity.
- .10 Spill control plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .11 Air pollution control plan detailing provisions to ensure that dust, debris, materials and trash are contained on project site.
- .12 Noise prevention plan, specifying measures that will be implemented to keep noise to an acceptable level throughout Work.
- .13 Contamination prevention plan identifying potentially hazardous substances to be used on work site, intended measures to prevent introduction of such materials into air, water or ground, and detailing provisions for compliance with federal, provincial, and municipal acts and regulations for storing and handling these materials.

## **1.5 FIRES**

- .1 Fires and burning of waste on site are forbidden.

## **1.6 DRAINAGE**

- .1 Develop and submit Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls that will be implemented. Include monitoring and reporting requirements for ensuring that control measures comply with federal, provincial, and municipal laws and regulations.
- .2 Provide temporary drainage and pumping required to keep excavations and site dry.
- .3 Ensure water pumped into waterways, sewer or drainage systems is free of suspended materials.

- .4 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

## **1.7 SITE CLEARING AND PLANT PROTECTION**

- .1 Protect trees and plants on site and adjacent properties as indicated.
- .2 Protect trees and shrubs adjacent to construction site, storage areas and trucking lanes.
- .3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage.
  - .1 Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .4 Minimize stripping of topsoil and vegetation.
- .5 Remove trees only in areas identified on plans and as directed by Departmental Representative.

## **1.8 POLLUTION CONTROL**

- .1 Maintain temporary facilities to prevent erosion and pollution implemented under this Contract.
- .2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.
- .3 Cover or wet down dry materials and waste to prevent blowing dust and debris. Provide dust control on existing public roadways and temporary roads borrowed and soiled by Contractor and subcontractors.

## **1.9 NOTIFICATION OF NON-COMPLIANCE**

- .1 Departmental Representative will notify Contractor in writing of any observed non-compliance with federal, provincial or municipal environmental laws, regulations, permits or any other element of Contractor's Environmental Protection Plan.
- .2 Upon receipt of such notice, submit proposed corrective actions to Departmental Representative for review; implement said actions upon receipt of approval.
  - .1 Wait for written approval from Departmental Representative before implementing proposed corrective actions.
- .3 Departmental Representative will suspend 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 (N/A)**

**Part 3            Execution**

**3.1                CLEANING**

- .1      Progress cleaning: Clean in accordance with Section 01 74 00 – Cleaning.
  - .1          Leave Work area clean at end of each work day.
- .2      Ensure public waterways, as well as storm and sanitary sewers remain free of waste and disposed volatile materials.
- .3      Final cleaning: Upon completion, remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 – Cleaning.
- .4      Waste management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 – Waste Management and Disposal.
  - .1          Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**

**Part 1            General**

**1.1               RELATED REQUIREMENTS**

- .1       Not used.

**1.2               REFERENCE CODES, STANDARDS AND OTHER DOCUMENTS**

- .1       Ministère des Transports du Québec (MTQ).
- .2       Cahier des charges et devis généraux – Infrastructures routières – Construction et réparation, 2021 Edition (CCDG).
  - .1       This section should be considered as the special specifications (devis spécial) referred to in the CCDG. In case of contradiction with the CCDG, provisions from this current Section shall take precedence.
  - .2       All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.
- .3       Meet or exceed requirements of documents hereunder:
  - .1       Contract documents.
  - .2       Specified standards, codes and other referenced documents.

**1.3               HAZARDOUS MATERIAL DISCOVERY**

- .1       Stop Work immediately when hazardous materials are encountered and notify Departmental Representative.

**1.4               SMOKE-FREE ENVIRONMENT**

- .1       Comply with smoking restrictions and municipal by-laws.

**Part 2           Products (N/A)**

**Part 3           Execution (N/A)**

**END OF SECTION**



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**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1    Not used.

**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. Department will assume all costs for such.
- .2    Provide equipment required for inspection and testing by appointed agencies.
- .3    Employment of inspection/testing agencies does not relieve 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 directed by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

**1.3            ACCESS TO WORK SITE**

- .1    Allow inspection/testing agencies access to work site, as well as off-site manufacturing and fabrication plants.
- .2    Cooperate to provide reasonable facilities for such access.

**1.4            PROCEDURES**

- .1    Give advance notice to appropriate agency and Departmental Representative when testing is required, to ensure all parties can be in attendance.
- .2    Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to prevent 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            REPORTS**

- .1    Submit two (2) copies of inspection and test reports to Departmental Representative.
- .2    Submit copies of said reports to subcontractors responsible for work inspected or tested.

**1.6            REJECTED WORK**

- .1    Remove defective Work rejected by Departmental Representative as failing to conform to Contract documents, whether result of poor workmanship, use of defective products or damage, and regardless of whether already incorporated in Work. Replace or re-execute relevant elements 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 difference in value between Work performed and that called for by Contract documents, as determined by Departmental Representative, from Contract price.

**1.7 TESTS AND MIX DESIGNS**

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those specifically stipulated in Contract documents or specifically required by local regulations will be subject to Departmental Representative's approval.

**1.8 MOCK-UPS**

- .1 Prepare mock-ups for Work as stipulated in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct mock-ups in locations approved by Departmental Representative.
- .3 Prepare mock-ups for Departmental Representative's approval with reasonable promptness and in orderly sequence, to prevent 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 mock-up preparation schedule.
- .6 Remove mock-up at conclusion of Work or when determined by Departmental Representative.

**1.9 MILL TESTS**

- .1 Submit mill test certificates as required.

**1.10 EQUIPMENT, SYSTEMS AND DEVICES**

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

**Part 2 Products (N/A)**

**Part 3 Execution (N/A)**

**END OF SECTION**

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

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

**1.2            REFERENCE STANDARDS**

- .1      Canadian Standards Association (CSA International)
  - .1      CAN/CSA-Z321-96(R2001), Signs and Symbols for the Workplace.
  - .2      Ministère des Transports, de la Mobilité durable et de l'Électrification des Transports du Québec – Collection Normes – Ouvrages routiers, Tome V – Signalisation routière, latest edition.

**1.3            ACTION AND INFORMATIONAL SUBMITTALS**

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

**1.4            INSTALLATION AND REMOVAL OF MATERIALS AND EQUIPMENT**

- .1      Indicate what signs are required for Work.
- .2      Identify areas to be gravelled to prevent tracking of mud.
- .3      Indicate all additional areas, including those on Work plan.
- .4      Provide construction facilities in order to execute Work expeditiously.
- .5      Demobilize materials and equipment when no longer needed on work site.
- .6      Clean up debris.
- .7      Implement erosion control measures needed in temporary construction areas.

**1.5            CONSTRUCTION PARKING**

- .1      Obtain Departmental Representative's authorization to park on site.
- .2      Provide and maintain adequate access to work site.

**1.6            SECURITY MEASURES**

- .1      Provide and pay for responsible security personnel to guard site and contents after Working hours and on holidays.

**1.7            OFFICES**

- .1      Provide well-ventilated office, lighted to 750 lx, of suitable size to accommodate site meetings, and equipped with a table large enough to spread out drawings. Ensure office area also meets all COVID-19-related requirements.
- .2      Provide marked and fully stocked first-aid case in a readily available location.
- .3      Departmental Representative's office

- .1 Provide a temporary office for Departmental Representative's exclusive use.
- .2 Provide well-ventilated office, lighted to 750 lx. Ensure office area also meets all COVID-19-related requirements.
- .3 Furnish office with a desk with locking drawers and three chairs.
- .4 In accordance with Article 3.2.7 of the *Safety Code for the Construction Industry*, issued under the *Occupational Health and Safety Act*, allow site supervisor and his representatives to access toilets provided for workers.
- .5 Provide a water cooler and maintain water supply for duration of Contract.
- .6 Ensure field office is functional even before work begins, i.e. that water and electricity have been hooked up. Maintain these services until project is completed.
- .7 As soon as work begins and until all deficiencies identified at Provisional Acceptance have been corrected, provide a photocopier and high-speed internet access for Departmental Representative's exclusive use.
- .8 Maintain an appropriate level of lighting and ensure office is well-ventilated and adequately cleaned for duration of Contract.

#### **1.8 EQUIPMENT, TOOL AND MATERIALS STORAGE**

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

#### **1.9 SANITARY FACILITIES**

- .1 Provide sanitary facilities for workers in accordance with relevant and applicable ordinances and regulations associated with COVID-19.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

#### **1.10 SITE INSTALLATION**

- .1 Signs and posters may not be installed on site.

#### **1.11 TRAFFIC MANAGEMENT**

- .1 Maintain and protect traffic on affected roads during construction period.
- .2 Location, grade, width and alignment of construction and hauling roads are subject to Departmental Representative's approval.
- .3 Provide measures for protection and diversion of traffic, including provision of watchpersons or flaggers, erection of barricades, placing of lights around and in front of equipment and Work, and erection and maintenance of adequate warning, danger, and directional signs, if required.
- .4 Protect travelling public from damage to person and property.

- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Set up truck waiting areas to stabilize site traffic.
- .7 Consult relevant authorities at truck route planning stage to obtain Departmental Representative's approval of truck routes in local road network.
- .8 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .9 Build access roads and truck waiting areas as indicated.
- .10 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .11 Take necessary dust control measures to ensure safe operations at all times.
- .12 Location, grade, width and alignment of construction and hauling roads are subject to Departmental Representative's approval.
- .13 Dismantle temporary construction site structures designed by Departmental Representative upon completion of Work.

**1.12 CLEANING**

- .1 Clean in accordance with Section 01 74 00 – Cleaning.
- .2 Remove construction debris, waste materials, packaging material from work site daily.
- .3 Clean dirt or mud tracked onto paved or surfaced roadways.
- .4 Stack stored new or salvaged material not in construction facilities.

**1.13 RESTORATION**

- .1 Restore surfaces and structures damaged during Work to prior existing condition.

**Part 2 Products (N/A)**

**Part 3 Execution (N/A)**

**END OF SECTION**



**Part 1        General**

**1.1        REFERENCE STANDARDS**

- .1        Ministère des Transports du Québec (Department of Transportation)
  - .1        Collection Normes – Ouvrages Routiers, Tome V – Signalisation routière, latest edition.

**1.2        PROTECTION OF PUBLIC TRAFFIC**

- .1        Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2        When working on travelled way:
  - .1        Place equipment in position to minimize interference and hazard to travelling public.
  - .2        Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
  - .3        Do not leave equipment on travelled way overnight.
- .3        Close lanes of road only after receipt of written authorization from Departmental Representative.
  - .1        Install appropriate signalling in accordance with MTQ standards before diverting traffic.
- .4        Keep travelled way graded, free from pot holes and of sufficient width for required number of traffic lanes.

**1.3        INFORMATIONAL AND WARNING DEVICES**

- .1        Supply and install lighted arrow boards to indicate construction activities or other temporary and unusual conditions resulting from Work requiring road user response. Maintain in accordance with MTQ standards.
- .2        Supply and install signals, barricades and other warning devices in accordance with MTQ standards.
- .3        Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to Departmental Representative's approval.
- .4        Continually maintain traffic control devices in use:
  - .1        Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
  - .2        Remove or cover signs that do not apply to conditions existing from day to day.

#### **1.4 CONTROL OF PUBLIC TRAFFIC**

- .1 Provide competent flag personnel, trained and equipped in accordance with MTQ standards for the following situations:
  - .1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
  - .2 When it is necessary to institute a one-way traffic system through a construction zone where volume is heavy and approach speeds are high.
  - .3 Where temporary protection is required while other traffic control devices are being erected or taken down.
  - .4 For emergency protection when other traffic control devices are not readily available.
  - .5 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
  - .6 Delays to public traffic due to contractor's operators: two (2) minutes maximum.
- .2 Maintain existing conditions for traffic throughout period of contract except that, when required for construction under contract, implement measures approved by Departmental Representative and in accordance with these specifications to protect and control public traffic.

**Part 2 Products (N/A)**

**Part 3 Execution (N/A)**

**END OF SECTION**

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1    Section 01 35 29.06 – Health and Safety Requirements
- .2    Section 01 35 43 – Environmental Procedures
- .3    Section 01 55 26 – Traffic Control
- .4    Section 01 74 19 – Waste Management and Disposal

**1.2            REFERENCE STANDARDS**

- .1    CAN/CSA-Z321-96(R2001), Signs and Symbols for the Workplace.
- .2    Ministère des Transports du Québec (MTQ) – Collection Normes – Ouvrages routiers, Tome V – Signalisation routière, latest edition.

**1.3            INSTALLATION AND REMOVAL OF EQUIPMENT**

- .1    Build and/or maintain temporary barriers and enclosures.
- .2    Dismantle equipment and remove from site when no longer needed.

**1.4            SITE ACCESS**

- .1    Implement whatever additional security arrangements needed to limit site access and protect facilities from vandalism.
- .2    Provide fencing around trees and plants designated to remain to protect from damage by equipment and construction procedures.

**1.5            PUBLIC TRAFFIC FLOW**

- .1    Maintain and protect traffic on affected roads during construction period.
- .2    Retain services of competent flaggers as required during execution of Work, to protect public, as required.
- .3    Ensure trucks backing up are guided by a flagger or maneuvering in a properly marked, dedicated area.

**1.6            FIRE ROUTES**

- .1    Maintain access to work site including overhead clearances for use by emergency response vehicles.

**1.7            PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY**

- .1    Protect surrounding private and public property from damage during execution of Work.
- .2    Assume full responsibility for any for damage incurred.

**1.8            PROTECTIVE FENCING**

- .1    Ensure user safety by installing appropriate fencing, as required.

- .2 Plant protection:
  - .1 Provide fencing around trees and plants designated to remain to protect from damage by equipment and construction procedures.

**1.9 WASTE MANAGEMENT AND DISPOSAL**

- .1 Waste management: separate waste materials for recycling in accordance with Section 01 74 19 – Waste Management and Disposal.

**Part 2 Products (N/A)**

**Part 3 Execution (N/A)**

**END OF SECTION**

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1      All applicable sections.

**1.2            REFERENCE STANDARDS**

- .1      Owner's identification of existing survey control points and property limits.

**1.3            SURVEYOR QUALIFICATION**

- .1      Qualified and certified registered land surveyor or survey technician, member of the CCQ and licensed to practise in place of Work, approved by Departmental Representative.

**1.4            SURVEY REFERENCE POINTS**

- .1      Existing base horizontal and vertical control points are designated on drawings.
- .2      Locate, confirm and protect control points prior to starting site Work. Preserve permanent reference points during construction.
- .3      Make no changes or relocations without prior written notice to Departmental Representative.
- .4      Report to Departmental Representative when reference point is lost, destroyed or requires relocation because of necessary changes in grades or locations.
- .5      Require surveyor to replace control points in accordance with original survey control.

**1.5            SURVEY REQUIREMENTS**

- .1      Establish a sufficient number of temporary benchmarks on site, referenced to established benchmarks by survey control points. Record locations, entering horizontal and vertical data in project record documents.
- .2      Use surveying instruments to establish lines and levels, and to locate and lay out.
- .3      Stake constructions site for excavation and earthwork.

**1.6            EXISTING SYSTEMS**

- .1      Establish location and extent of utility lines in work area prior to starting work. Notify Departmental Representative of findings.
- .2      Obtain all necessary information from owners of municipal utility lines, wires, cables or other, regardless of whether indicated on plans or visible by site examination, in order to protect or redo them. Assume all costs of such protection or repair.
- .3      Provide surveyor with copies of requests submitted to Info-Excavation and Municipalities involved.
- .4      Take all such equipment into account in work organization and implement whatever precautions necessary to prevent from damaging it.

- .5 If any such equipment breaks, notify supervisor, municipality or companies involved immediately and make necessary arrangements to restore damaged equipment at own expense.

**1.7 LOGBOOKS**

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 Upon completion of foundations and major site developments, prepare a certified survey showing dimensions, locations, angles and elevations of structures.
- .3 Record locations of maintained, re-routed and abandoned utility lines.

**1.8 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit name and address of surveyor to Departmental Representative.
- .2 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed structures that conform and do not conform with Contract documents.

**1.9 SUBSURFACE CONDITIONS**

- .1 Promptly notify Departmental Representative in writing if subsurface conditions at place of Work differ materially from those indicated in Contract documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should Departmental Representative determine that conditions do differ materially, instructions will be issued for changes in Work to perform, under terms of Change Orders submitted.

**Part 2 Products (N/A)**

**Part 3 Execution (N/A)**

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 74 19 – Waste Management and Disposal

**1.2 REFERENCE STANDARDS**

- .1 Province of Quebec:
  - .1 Act Respecting Occupational Health and Safety (CQLR c S-2.1).

**1.3 PROJECT CLEANLINESS**

- .1 Maintain site in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other contractors.
- .2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Burning waste materials on site is not permitted.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris, or arrange for hauling said waste material to a site as permitted by authorities having jurisdiction.
- .4 Provide on-site containers for disposal of debris and waste materials, if required.
- .5 Provide and use marked separate bins for recycling. Refer to Section 01 74 19 – Waste Management and Disposal.
- .6 Dispose of waste materials and debris off site.

**1.4 FINAL CLEANING**

- .1 Upon substantial performance of Work, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris and leave premises clean and suitable for occupancy.
- .3 Prior to final inspection, remove surplus materials, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Owner or other contractors.
- .5 Remove waste materials and debris from site at regularly scheduled times or dispose of as directed by Departmental Representative. Burning waste materials on site is not permitted.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris, or arrange for hauling said waste material to a site as permitted by authorities having jurisdiction.
- .7 Access road and areas reserved for Contractor.
  - .1 Clear areas of construction debris and waste.
  - .2 If ruts are visible, fill and compact stone foundation to restore proper slopes for surface water runoff.

- .8 Clean reflectors, lenses, and other lighting surfaces.
- .9 Remove stains, spots, marks and scratches from decorative structures.
- .10 Clean dirt or mud tracked onto paved or surfaced roadways.
- .11 Inspect finishes, fitments and equipment and ensure specified workmanship and operation requirements have been met.
- .12 Sweep and clean sidewalks; sweep or rake other surfaces of grounds.
- .13 Sweep and wash clean paved areas.

**1.5 RESTORATION**

- .1 Restore surfaces and structures damaged during Work to prior existing condition.

**Part 2 Products (N/A)**

**Part 3 Execution (N/A)**

**END OF SECTION**

**Part 1 General**

**1.1 WASTE MANAGEMENT OBJECTIVES**

- .1 Minimize quantity of solid, non-hazardous waste generated by Work and maximize reduction at source, as well as reuse and recycling of solid waste.
- .2 Protect environment and prevent damage associated with polluting environment.

**1.2 RELATED REQUIREMENTS**

- .1 Section 01 33 00 – Submittal Procedures
- .2 Section 01 74 00 – Cleaning
- .3 Section 02 41 13 – Selective Site Demolition
- .4 Section 31 00 00.01 – Earthwork – Short Form
- .5 Section 31 11 00 – Clearing and Grubbing

**1.3 REFERENCE STANDARDS**

- .1 Department of Justice Canada
  - .1 Canadian Environmental Assessment Act (CEAA), 1997, c. 37.
  - .2 Canadian Environmental Protection Act, 1999 (CEPA), c. 33.
- .2 Province of Quebec:
  - .1 Environment Quality Act, CQLR, c Q-2.

**1.4 DEFINITIONS**

- .1 Clean waste: Untreated and unpainted; not contaminated with oils, solvents, sealants or similar materials.
- .2 Construction and demolition waste: Solid waste that typically include building materials, packaging, trash, debris and rubble resulting from construction, re-modeling operations, repair and demolition.
- .3 Hazardous materials: Exhibiting the characteristics of hazardous substances including properties such as ignitability, corrosiveness, toxicity or reactivity.
- .4 Non-hazardous materials: Exhibiting none of the characteristics of hazardous substances, including properties such as ignitability, corrosiveness, toxicity, or reactivity.
- .5 Non-toxic materials: Not poisonous to humans either immediately or after a long period of exposure.
- .6 Recyclable: Ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- .7 Recycle: To relocate waste material from project site to another site for remanufacture into a new product for reuse by others.

- .8 Recycling: Process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using in altered form; recycling does not include burning, incinerating, or thermally destroying waste.
- .9 Return: To give back reusable items or unused products to vendors for credit.
- .10 Reuse: To reuse construction waste material in some manner on the project site.
- .11 Salvage: To relocate waste material from project site to another site for resale or reuse by others.
- .12 Sediment: Soil and other debris that has been eroded and transported by storm or runoff water.
- .13 Source separation: Act of keeping different types of waste materials separate, from the first time they become waste.
- .14 Toxic materials: Poisonous to humans either immediately or after a long period of exposure.
- .15 Trash: Any product or material unable to be reused, returned, recycled or salvaged.
- .16 Volatile Organic Compounds (VOCs): Chemical compounds common in and emitted by many building products over time through outgassing:
  - .1 Solvents in paints and other coatings.
  - .2 Wood preservatives; strippers and household cleaners.
  - .3 Adhesives in particleboard, fiberboard, and some plywood or foam insulation.
  - .4 When released, VOCs can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.
- .17 Waste: Extra materials or material that has reached the end of its useful life for its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

## **1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Before final payment, submit the following:
  - .1 Waste disposal report indicating final quantities of materials by type of material disposed of in land fills, recycling centres, reuse depots and any other waste treatment facility.

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

- .1 Execute Work with least possible interference or disturbance to normal use of premises.
- .2 Maintain security measures established for facility. Implement provisional security measures approved by Departmental Representative.

## **1.7 WASTE TREATMENT SITE**

- .1 Find waste diversion resources and service suppliers. Transport salvaged waste material to approved and/or authorized recycling facilities or material recyclers.
- .2 Provide documentation proving compliant disposal of waste at authorized sites.

## **1.8 STORAGE, HANDLING AND PROTECTION OF MATERIALS**

- .1 Store waste materials collected for reuse and recycling in location as indicated by Departmental Representative.
- .2 Waste material to be removed from site becomes property of Contractor, unless otherwise indicated.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable items from salvageable items. Transport and deliver non-salvageable items to authorized disposal facility.
- .5 Provide on-site facilities and containers to collect and store reusable and recyclable materials.
- .6 Sort and store waste material generated by Work in designated areas.
- .7 Prevent waste material destined for salvage and recycling from contamination, in accordance with conditions for acceptance of designated processing facilities.
  - .1 It is recommended to source separate waste material.
  - .2 Remove unsorted waste materials to off-site treatment facility for sorting.
  - .3 Obtain waybills, receipts and/or weigh slips for waste material sorted and removed from site.
  - .4 Materials re-used on site are deemed to have been diverted; include in all reports.

## **1.9 WASTE DISPOSAL**

- .1 It is prohibited to bury debris or waste.
- .2 It is prohibited to dispose of waste, volatile matter, mineral spirits, hydrocarbons or paint thinner in a waterway or storm or sanitary sewer.

## **1.10 WORK SCHEDULE**

- .1 Coordinate waste management with other activities to ensure an orderly sequencing of Work.

## **Part 2 Products**

### **2.1 NATURE OF MATERIALS**

- .1 Construction and demolition waste includes, without being limited to: stone of various sizes, gravel, pieces of wood, pins, wood material, asphalt pavement, haul pallets, steel or plastic drums used to transport materials, packaging material, tarps, plastic sheeting, jute, etc.

**Part 3 Execution**

**3.1 GENERAL**

- .1 Handle in accordance with acts and regulations pertaining to waste that will not be reused, recycled or salvaged.

**3.2 CLEANING**

- .1 Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.
  - .1 Leave Work area clean at end of each work day.
- .2 Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.
- .3 Waste management: separate waste materials for reuse and recycling in accordance with this Section.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
  - .2 Source separate waste material to be re-used or recycled and place in indicated locations.

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

- .1 Key environmental government authorities:

Environment Canada – National Environmental Emergencies Centre			
(866) 283-2333			
Ministère du Développement durable, Environnement et Lutte contre les changements climatiques			
	Address	Phone	Fax
Québec	Information Centre Édifice Marie-Guyart, 29e étage 675, boulevard René-Lévesque Est Québec, Québec G1R 5V7	(418) 521-3830 (800) 561-1616	(418) 646-5974
Urgence Environnement		(866) 694-5454 (418) 643-4595	

**END OF SECTION**

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1    Section 01 74 00 – Cleaning
- .2    Section 01 74 19 – Waste Management and Disposal

**1.2            ADMINISTRATIVE PROCEDURES**

- .1    Acceptance of Work Procedures:
  - .1    Contractor's inspection: Contractor conducts inspection of Work, identifies deficiencies and defects, and repairs as required to conform to Contract documents.
    - .1    Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit document attesting that corrections have been made.
    - .2    Request Departmental Representative inspection.
  - .2    Departmental Representative's inspection
    - .1    Departmental Representative and Contractor inspect Work together to identify defects and deficiencies.
    - .2    Contractor corrects Work as directed.
  - .3    Completion tasks: Submit written certificates in either official language, certifying tasks have been performed as follows:
    - .1    Work has been completed, inspected and deemed compliant with Contract documents.
    - .2    Defects and deficiencies found during inspections have been corrected.
    - .3    Work has been completed and is ready for final inspection.
  - .4    Final Inspection:
    - .1    Once all completion tasks are done, request final inspection of Work by Departmental Representative and Contractor.
    - .2    When Work is deemed 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, submit request for Certificate of Substantial Performance.

**1.3            FINAL CLEANING**

- .1    Clean in accordance with Section 01 74 00 – Cleaning.
  - .1    Remove surplus materials and equipment, waste and tools.
- .2    Waste management: in accordance with Section 01 74 19 – Waste Management and Disposal.

**Part 2**            **Products (N/A)**

**Part 3**            **Execution (N/A)**

**END OF SECTION**

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1      Section 01 33 00 – Submittal Procedures
- .2      Section 01 45 00 – Quality Control

**1.2            ACTION AND INFORMATIONAL SUBMITTALS**

- .1      Closeout submittals:
  - .1      Project record documents, samples and specifications.
  - .2      Shop drawings.
  - .3      Annotated as-built plans.
  - .4      Data sheets, materials, equipment, finishes and related information.
  - .5      Maintenance materials/equipment, special tools and spare parts.
- .2      Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .3      Submit two (2) final copies of all requested documents in French to Departmental Representative two (2) weeks prior to substantial performance of Work.
- .4      Copies annotated with Departmental Representative's comments will be returned after final inspection of Work.
- .5      Review contents of documents before re-submitting, if necessary.
- .6      Provide evidence, if requested, for type, source and quality of products supplied.
- .7      Provide PDF files of all documentation to be submitted upon completion of Work.

**1.3            FORMAT**

- .1      Present data as an instruction manual in PDF format.
- .2      Group data in logical order.
  - .1      Clearly indicate file contents.
    - .1      Indicate document title, i.e. "Project Record Document," project identification and table of contents on cover page of each file.
- .3      Arrange content in logical order of operations, according to Section numbers and sequence in table of contents.
- .4      For each product and system, provide a file containing product description and major parts list of equipment.
- .5      Text to contain data provided by manufacturer.
- .6      Provide files on CD-ROM or USB key.
- .7      Provide project record documents in PDF format on CD-ROM or USB key.

#### **1.4 PROJECT RECORD DOCUMENT CONTENTS**

- .1 Table of contents for each volume: indicate project identification.
  - .1 Date of document filing.
  - .2 Names, addresses and phone numbers of Departmental Representative and Contractor, as well as name of Contractor's representative.
  - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system, indicate:
  - .1 Names, addresses and phone numbers of subcontractors and suppliers, including local source of supplies and spare parts.
- .3 Data sheets: Mark each sheet to identify specific products and component parts, as well as data applicable to installation; delete irrelevant information.
- .4 Drawings: Supplement product data with drawings to illustrate relation between equipment and system components; include control and flow diagrams.
- .5 Typewritten text: As required to supplement product data sheets.
  - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 – Quality Control.

#### **1.5 DOCUMENTS AND SAMPLES TO INCLUDE IN PROJECT RECORD DOCUMENTS**

- .1 Maintain on site, in addition to requirements in General Conditions, one (1) copy or set of following documents, for Departmental Representative's use:
  - .1 Contract drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change orders and other Contract amendments.
  - .5 Reviewed shop drawings, data sheets and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store project record documents and samples in field office, separate from documents used for execution of Work. Provide filing cabinets, shelving and secure storage location.
- .3 Label documents and file in accordance with Section numbers indicated in table of contents of Project Manual. Clearly label each document with "PROJECT RECORD DOCUMENTS" in printed letters.
- .4 Maintain project record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep project record documents and samples available for inspection by Departmental Representative.

## **1.6 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS**

- .1 Record information on two (2) sets of opaque drawings and keep one (1) set on file.
- .2 Record information with felt tip marking pens and maintain separate colours for each major system.
- .3 Record information concurrently with construction progress.
  - .1 Do not conceal Work until required information has been recorded.
- .4 Contract drawings and shop drawings: Mark each item to record actual construction, including:
  - .1 Measured horizontal and vertical locations of underground utility lines and appurtenances, referenced to permanent surface improvements.
  - .2 Field changes of dimension and detail.
  - .3 Changes made subsequent to change orders.
  - .4 Details not on original Contract documents.
  - .5 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record as-built structures, including:
  - .1 Manufacturer, trade name, and catalogue number of each product actually installed, especially optional items and substitute items.
  - .2 Changes made as a result of addenda and change orders.
  - .3 Provide digital photos, if requested, for project record documents.
- .6 Other documents: maintain manufacturer's certifications, inspection certifications and field test records as required by individual technical specifications sections.
- .7 Provide digital photos for project record documents, most specifically regarding marking of existing stone.
- .8 Submit to Departmental Representative upon completion of Work, one original copy and one electronic copy on USB key of all site records annotated according to requirements. Insert all documents in a binder and include a table of contents.

## **1.7 MATERIALS AND FINISHES**

- .1 Building products, applied materials and finishes: include data sheets with catalogue number, sizes, composition and colour and texture designations.
- .2 Instructions relating to cleaning agents and methods, precautions against harmful agents and detrimental methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against harmful agents and detrimental methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual technical specification sections.

## **1.8 DELIVERY, STORAGE AND HANDLING**

- .1 Store special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Remove and replace damaged products at own expense and submit new products to Departmental Representative for review.

## **1.9 WARRANTY AND BOND**

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, thirty (30) days before completion of Work for Departmental Representative's approval.
- .3 Warranty management plan to include required actions and documents to ensure that Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit warranty information made available during construction phase to Departmental Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
  - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) days after completion of applicable work package.
  - .4 Verify that documents are in proper form, contain full information, and are notarized.
  - .5 Co-execute submittals when required.
  - .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 With Departmental Representative, conduct joint four (4) month and nine (9) month warranty inspection, calculated from time of acceptance.
- .9 Include information contained in warranty management plan as follows:
  - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.

- .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include commissioned systems.
- .3 Provide list of all warranted equipment, items, systems and work packages indicating:
  - .1 Name of item, equipment, system or package.
  - .2 Model and serial numbers.
  - .3 Location.
  - .4 Name and phone numbers of manufacturers or suppliers.
  - .5 Names, addresses and telephone numbers of sources of spare parts.
- .6 Warranties and terms of warranty: include one (1) year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
- .7 Cross-reference to warranty certificates as applicable.
- .8 Starting point and duration of warranty period.
- .9 Summary of maintenance procedures required to continue warranty in force.
- .10 Cross-reference to specific pertinent Operation and Maintenance manuals.
- .11 Organization, names and phone numbers of persons to call for warranty service.
- .12 Typical response time and repair time expected for various warranted equipment.
- .4 Contractor's plans for attendance at four (4) and nine (9) month post-construction warranty inspections.
- .5 Procedure and status of tagging of equipment covered by extended warranties.
- .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .10 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .11 Written verification to follow oral instructions.
  - .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

**Part 2            Products (N/A)**

**Part 3            Execution (N/A)**

**END OF SECTION**

**Part 1            General**

**1.1            SUMMARY**

- .1      Section includes descriptions for demolishing, salvaging, recycling and removing site work items identified for removal in whole or in part, and for backfilling trenches and excavations resulting from site demolition activities.
- .2      Related Work required under this section and included in structures specified on Bid Schedule and plans is, without being limited to:
  - .1          Section of fence to remove.
  - .2          Removal of a section of tree hedges and shrubs.
  - .3          Salvage of ten (10) trees in the section to remove, in accordance with Section 32 01 90.33 – Tree and Shrub Preservation.
  - .4          Stripping of sodded areas.
  - .5          Excavation and stockpiling of topsoil on-site.
  - .6          Excavation of asphalt concrete pavement.
  - .7          Excavation and backfilling required as a result of Work.
  - .8          Disposal of non-reusable materials other than topsoil.
  - .9          Protection of trees and other existing plants.
  - .10        Site cleaning and restoration.

**1.2            RELATED SECTIONS**

- .1      Section 01 35 43 – Environmental Procedures
- .2      Section 01 74 00 – Cleaning
- .3      Section 01 74 19 – Waste Management and Disposal
- .4      Section 31 00 00.01 – Earthwork – Short Form
- .5      Section 31 11 00 – Clearing and Grubbing
- .6      Section 32 01 90.33 – Tree and Shrub Preservation

**1.3            REFERENCE STANDARDS**

- .1      Department of Justice Canada
  - .1          Canadian Environmental Assessment Act (CEAA), 1997, c. 37.
  - .2          Canadian Environmental Protection Act, 1999 (CEPA), c. 33.
- .2      Province of Quebec:
  - .1          Environment Quality Act, CQLR, c Q-2.

**1.4            ACTION AND INFORMATIONAL SUBMITTALS**

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

.2 Certificates

- .1 At Departmental Representative's request, submit copies of certified weigh slips, bills of lading or receipts from authorized disposal sites and reuse and recycling facilities for all material removed from site.
- .2 Obtain written authorization from Departmental Representative before sending materials elsewhere than to waste facilities or organizations accepting waste as identified in Waste Reduction Plan.

**1.5 QUALITY ASSURANCE**

- .1 Regulatory Requirements: ensure Work is performed in compliance with applicable Provincial/Territorial regulations.

**1.6 DELIVERY, STORAGE AND HANDLING**

.1 Storage and protection

- .1 Protect existing structures designated to remain in place, as well as those to be salvaged. If said structures are damaged, replace or repair immediately to Departmental Representative's satisfaction and at no extra cost to Departmental Representative.
- .2 Remove materials designated for salvage, ensuring they are not damaged.
- .3 Store and protect materials to ensure maximum preservation.

.2 Waste management and disposal

- .1 Other than topsoil to be stockpiled on-site, divert excess materials from landfill to site approved in accordance with standards in force and as approved by Departmental Representative.
- .2 Handle and dispose of hazardous materials in accordance with provincial regulations, where required.
- .3 Identify location of storage areas for salvaged materials.
- .4 Ensure empty containers are sealed and stored securely.
- .5 Source separate materials for recycling that cannot be reused, including wood, metal, concrete and asphalt.
- .6 Remove materials that cannot be reused from site and dispose of at certified facilities, in accordance with applicable codes.

**1.7 SITE CONDITIONS**

.1 Environmental requirements.

- .1 Perform work in accordance with Section 01 35 43 – Environmental Procedures.
- .2 Ensure Work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
- .3 Fires and burning of waste or materials is not permitted on site.
- .4 Do not bury rubbish waste materials.

- .5 Disposal of waste of volatile materials including but not limited to, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers, is not permitted.
- .6 Ensure proper disposal procedures are maintained throughout the project.
- .2 Pumping of water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties is not permitted.
- .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with directives from local authorities.
- .4 Protect trees, plants and foliage on site and adjacent properties where indicated.
- .5 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on temporary roads.

## **1.8 EXISTING CONDITIONS**

- .1 Hazardous materials: It is not expected that hazardous materials will be encountered in the Work.
  - .1 Hazardous substances are as defined in the Hazardous Products Act.
- .2 If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Departmental Representative.

## **Part 2 Products**

### **2.1 EQUIPMENT**

- .1 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Inspect construction site and check with Departmental Representative to confirm location and extent of structures to be removed, disposed of, recycled, salvaged, as well as those to remain in place.
- .2 Locate and protect utility lines, as applicable. Protect drain pipes kept in service that cross the construction site to ensure they remain in working order.
- .3 Before starting demolition work, notify utility companies and obtain their approval.
- .4 Disconnect and cap electrical utility lines, if required.
- .5 Temporary Erosion and Sedimentation Control:
  - .1 Use 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, in accordance with requirements of authorities having jurisdiction.

- .2 Inspect, repair, and maintain erosion and sedimentation control measures during demolition.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal after completion of demolition work.

### **3.2 REMOVAL**

- .1 Remove existing structures specified on plans from site.
- .2 Disruption of items designated to remain in place is not permitted.
- .3 If applicable, remove materials defined as hazardous or contaminated by authorities having jurisdiction in environmental protection, and dispose of such off site, taking all necessary safety measures to minimize hazards during their removal and disposal.
- .4 Remove roadway pavement.
  - .1 Make saw cuts at joints to square up where new pavement meets existing pavement.
  - .2 If, at end of Work, sawn joint is too damaged by traffic or machinery, redo saw cuts at own expense.
  - .3 Protect underlying and adjacent granular materials.
- .5 During demolition, remove designated trees.
  - .1 Obtain written approval from Departmental Representative before removing trees not designated for removal.
- .6 Stockpile topsoil on-site.
  - .1 Turn over (rototill) existing surfaces to be excavated to a minimum depth of 150 mm before stripping topsoil.
  - .2 Provide erosion control measures until hydraulic seeding on stockpile has taken root.
- .7 Disposal of Material:
  - .1 Dispose of materials not designated for salvage or reuse on site at authorized and approved facilities, as instructed by Departmental Representative.
  - .2 If disposal of demolition materials took place on site, restore disposal areas to Departmental Representative's satisfaction.

### **3.3 STOCKPILING**

- .1 Label stockpiles, indicating material type and quantity.
- .2 Designate appropriate security resources / measures to prevent vandalism, damage and theft.

- .3 Locate stockpiled materials convenient for use in new construction. Eliminate double-handling wherever possible.
- .4 Stockpile materials designated for alternate disposal in location that facilitates removal from site and examination by potential end markets, and that does not impede disassembly, processing, or hauling procedures.

### **3.4 REMOVAL FROM SITE**

- .1 Remove stockpiled material as directed by Departmental Representative when it interferes with project construction.
- .2 Remove stockpiles of like materials by alternate disposal option once collection of materials is complete.
- .3 Transport material designated for alternate disposal using approved receiving organizations and in accordance with applicable regulations.
- .4 Dispose of products and materials not designated for alternate disposal in accordance with applicable regulations.
  - .1 Use approved disposal facilities that comply with applicable regulations.
  - .2 Written authorization from Departmental Representative is required to deviate from disposal facilities specified.

### **3.5 RESTORATION**

- .1 Restore surfaces and structures damaged during Work to prior existing condition to Department's satisfaction by repairing all surfaces and temporary access routes used by heavy equipment and/or trucks.
- .2 Use soil treatments and procedures that are not harmful to health, are not injurious to plants and do not endanger wildlife, adjacent watercourses or groundwater.

### **3.6 CLEANING**

- .1 Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.
  - .1 Leave Work area clean at end of each work day.
  - .2 Remove debris, trim surfaces and leave work site clean upon completion of Work.
  - .3 Use cleaning solutions and procedures that are not harmful to health, are not injurious to plants and do not endanger wildlife, adjacent watercourses or groundwater.
- .2 Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.

### **3.7 PROTECTION**

- .1 Repair damage to adjacent materials, equipment or property caused by selective site demolition.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 45 00 – Quality Control
- .2 Section 32 16 00 – Curbs, Gutters and Sidewalks
- .3 Section 31 00 00.01 – Earthwork – Short Form

**1.2 REFERENCE STANDARDS**

- .1 Ministère des Transports du Québec (MTQ).
  - .1 Collection Normes – Ouvrages routiers, Tome VII – Matériaux, latest edition.
  - .2 Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1 All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.
- .2 American Society for Testing and Materials International (ASTM)
  - .1 ASTM C171 Standard Specification for Sheet Materials for Curing Concrete.
  - .2 ASTM C309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
- .3 Canadian Standards Association (CSA)
  - .1 CSA-A23.1/A23.2: Concrete Materials and Methods of Concrete Construction / Test Methods and Standard Practices for Concrete.
  - .2 CSA-A23.3: Design of Concrete Structures.
  - .3 CSA A3000: Cementitious Materials Compendium.
- .4 Bureau de normalisation du Québec (BNQ)
  - .1 NQ 2560-114: Civil Engineering Work – Aggregates.
  - .2 NQ 2621-905: Ready-Mix Concrete.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit design mix, product data sheets and any other attestation of conformity for products intended for use in Work to Departmental Representative for approval.

**1.4 QUALITY ASSURANCE**

- .1 Quality assurance: to Section 01 45 00 – Quality Control.
- .2 At least two (2) weeks prior to starting concrete work, submit valid and recognized certificate to Departmental Representative from plant delivering concrete.
  - .1 Provide test data and certification by qualified independent inspection and testing laboratory that materials and mix designs used in concrete mixture meet specified requirements.
- .3 At least two (2) weeks prior to beginning concrete work, submit quality control methods planned for the following aspects to Departmental Representative for review.

- .1 Hot-weather concrete.
- .2 Cold-weather concrete.
- .3 Curing.
- .4 Finishing.
- .5 Formwork stripping.
- .6 Joints.
- .4 Collaborate fully in quality control of materials. Most specifically, inform Departmental Representative and testing laboratory ahead of time of work progress, dates of concrete work, and provide sufficient space on site and in proximity to construction work for storing samples and performing on-site testing.
- .5 In addition to collecting samples or control samples when required, testing laboratory will also perform control tests for air content and slump value. The Department or its Representative retains right to perform any other test deemed necessary.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Concrete.
  - .1 Type IV or V compliant with the MTQ's Tome V – Matériaux des normes.
- .2 Blended hydraulic cement.
  - .1 Type GU or GUb-SF, to CSA-A3000.
- .3 Water and aggregates
  - .1 To CSA A23.1/A23.2.
- .4 Admixtures.
  - .1 Air-entraining admixture: to ASTM C260/C260M.
  - .2 Chemical admixture: to ASTM C494/C494M.
- .5 Curing materials.
  - .1 Absorptive canvas: white, made of non-woven and needled polyester or polypropylene fibres, with minimum surface mass of 300 g/m<sup>2</sup>.
  - .2 Waterproof paper: to ASTM C171.
  - .3 Membrane-forming curing compound: to ASTM C309.

### **2.2 MIX DESIGN**

- .1 Prepare normal density concrete to CSA-A23.1.

- .2 Ensure concrete mixes meet requirements below:

Use	Max. water/ce- ment ratio	28-day strength (MPa)	Slump (mm)	Entrain- ed air	Max. aggregates (mm)	Exposure class
Curb	0.45	35	80 ± 30	from 5 to 8%	20	C-1

- .3 Select aggregate materials that will not be subject to alkali-aggregate reactions (AAR) when selecting aggregates for mix.

### **Part 3 Execution**

#### **3.1 PREPARATION**

- .1 Obtain written authorization from Departmental Representative before concrete placement. Provide Departmental Representative twenty-four (24) hours' notice before each concrete pour.
- .2 Follow indications below during concreting operations:
- .1 Development of cold joints is prohibited.
  - .2 Ensure concrete is delivered and handled to facilitate its placement with minimum amount of re-handling, and without damage to existing structure or work.
- .3 Protect previous Work from staining.
- .4 Clean concrete surfaces and remove stains before applying finishes.
- .5 Clean formwork with water before placing concrete.

#### **3.2 EXECUTION**

- .1 Perform cast-in-place concrete work to CSA A23.1/A23.2.
- .2 Vibrate to provide complete and uniform compaction of concrete, without causing ingredients to separate.
- .3 Special authorization from Departmental Representative is required for concrete placement directly in water.

#### **3.3 FINISHES**

- .1 Pedestrian surfaces
- .1 Screed to plane surfaces and then use floats.
  - .2 Round edges and space joint using standard tools.
  - .3 Trowel smooth and provide lightly brushed non-slip finish.

### **3.4 SAWN JOINTS**

- .1 Make saw cut in curb to depth of 100 mm every 6 m.

### **3.5 CONCRETE CURING**

- .1 Cure concrete to Article 15.4.3.5.9 of the CCDG.
- .2 Use curing compounds compatible with finishes on concrete surfaces, free of bonding agents, to CSA A23.1/A23.2.
- .3 At least seventy-two (72) hours prior to concrete pour, submit proposed curing methods to Departmental Representative for review.

### **3.6 SITE TOLERANCES**

- .1 At universal access points, ensure curb is no more than 13 mm higher than adjacent surfaces.

### **3.7 PROTECTION**

- .1 Protect cast-in-place concrete from bad weather, hot and cold temperatures, Work and potential damage caused by these elements.
- .2 For hot-weather concrete work (ambient temperature above 25 °C), protect concrete and formwork from sun exposure and lower temperature by watering if required. Also protect concrete from evaporation.

### **3.8 CLEANING**

- .1 Provide sufficient space on job site for concrete trucks to be safely washed.
- .2 Divert admixtures and additive materials from landfill to official hazardous material collections site approved by Departmental Representative.
- .3 Disposal of unused admixtures and additive materials into sewer systems, watercourses, lakes, onto ground or any other location where it could pose health or environmental hazard is prohibited.
- .4 Prevent admixtures and additive materials from entering drinking water supplies and streams.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 ASTM International
  - .1 ASTM A123/A123M – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
  - .2 ASTM D4956 – Standard Specification for Retroreflective Sheeting for Traffic Control
- .2 Ministère des Transports du Québec (Department of Transportation)
  - .1 Collection Normes – Ouvrages routiers, Tome III – Ouvrage d’art, latest edition
  - .2 Collection Normes – Ouvrages Routiers, Tome V – Signalisation routière, latest edition
  - .3 Collection Normes – Ouvrages routiers, Tome VII – Matériaux, latest edition.
  - .2 Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1 All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Product data sheets
  - .1 Submit manufacturer’s instructions, printed product literature and data sheets for proposed signage. Include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Shop drawings
  - .1 Ensure submitted shop drawings are signed and stamped by a professional engineer registered or licensed to practice in province of Quebec, Canada.
  - .2 Indicate items as follows:
    - .1 Materials and equipment.
    - .2 Thicknesses, dimensions and sizes.
    - .3 Colours.
    - .4 Construction details.
    - .5 Finishing.
    - .6 Interchangeable and removable components.
    - .7 Assembly method.
    - .8 Signage nomenclature.

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

- .1 Storage and Handling Requirements:
  - .1 Store materials off-ground in dry location 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/EQUIPMENT**

- .1 Sign supports:
  - .1 In accordance with Chapter 6 "*Structures de signalisation, d'éclairage et de signaux lumineux*," in MTQ's Tome III "*Ouvrages d'art*," relating to type L6X lateral signage structures.
  - .2 Monolithic post directly placed in ground, "U"-shaped in cross-section, ribbed, hot-dipped galvanized steel in accordance with ASTM-A123, perforated every 5.08 cm (2 in.).
  - .3 Accessories and fasteners from same manufacturer as supports and adapted to selected posts.
  - .4 Ties, straps and collars for installation on lamppost or structure: stainless steel.
- .2 Signs:
  - .1 Dimensions and pictograms: To MTQ's Tome V "*Signalisation routière*," as well as the *Répertoire des dispositifs de signalisation routière du Québec* (Quebec traffic control devices directory) ([www.rsr.transports.gouv.qc.ca](http://www.rsr.transports.gouv.qc.ca)).
  - .2 Thickness: To MTQ's Chapter 6 "*Structures de signalisation, d'éclairage et de signaux lumineux*," of Tome III "*Ouvrages d'art*."
  - .3 Materials: To Chapter 6 "*Pièces métalliques*," standard 6401 "*Aluminium*," of MTQ's Tome VII "*Matériaux*."

## **Part 3 Execution**

### **3.1 INSTALLATION**

- .1 Install signage and other traffic control devices in accordance with plans and indications set forth in the MTQ's Tome V "*Signalisation routière*."
- .2 Erect posts plumb and square to details as indicated.
- .3 Drive to required depth without damage to posts.
- .4 If rock or concrete is encountered, drill hole to required depth and set post in sand.
- .5 Fasten signboards to supporting posts and brackets as indicated by supplier.

**3.2 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by traffic sign installation and salvage operations.

**END OF SECTION**



## **Part 1 General**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 20 – Wire and Box Connectors (0-1000 V)
- .2 Section 26 05 21 – Wires and Cables (0-1000 V)
- .3 Section 26 05 34 – Conduits, Conduit Fastenings and Conduit Fittings
- .4 Section 26 09 23.02 – Lighting Control Devices – Photoelectric
- .5 Section 26 24 01 – Service Equipment
- .6 Section 26 28 13.01 – Fuses – Low Voltage
- .7 Section 26 28 16.02 – Moulded Case Circuit Breakers
- .8 Section 26 56 19 – Roadway Lighting

### **1.2 REFERENCE STANDARDS**

- .1 Canadian Standards Association (CSA Group).
  - .1 CSA C22.10-18, Québec Construction Code, Chapter V – Electricity – 2018.
  - .1 CSA C22.1-15, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
  - .2 CAN/CSA C22.2 No. 0 General requirements – Canadian Electrical Code, Part 2.
  - .3 CAN/CSA-C22.3 No. 1-15, Overhead Systems.
  - .4 CSA/CAN3-C235-1983 (R2015) – Preferred Voltage Levels for AC Systems up to 50,000 V.
  - .5 CSA C22.2 No. 206-13, Lighting Poles.
- .2 Institute of Electrical and Electronics (IEEE) / National Electrical Safety Code Product Line (NESC)
  - .1 IEEE Std 100-2000, The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition.
- .3 National Electrical Manufacturers Association (NEMA).
- .4 Underwriters Laboratories of Canada (ULC).
- .5 American National Standards Institute (ANSI).
- .6 Certified Ballast Manufacturer (CBM).
- .7 Illuminating Engineering Society of North America (IESNA).

### **1.3 DEFINITIONS**

- .1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications and on drawings are those defined in IEEE 100-2000.

#### **1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product data sheets
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for equipment and accessories of lighting system and its supply and distribution network, including product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop drawings and structural design calculations:
  - .1 Supply following documents for approval before manufacturing and installing lampposts:
    - .1 Shop drawings required according to Contract plans and specifications for lamppost installation.
    - .2 Detailed design calculations for lamppost structure. Design calculations to include, without being limited to, the following component design details:
      - .1 Wood pole class.
      - .2 Aluminum mast arm.
      - .3 Assembly of mast arm on wood lamppost pole.
      - .4 Lamppost pole.
      - .5 Pole setting depth.
      - .6 All other calculations relevant to lamppost scaling.
  - .2 Ensure all submittals are signed and stamped by a professional engineer registered with the Ordre des ingénieurs du Québec.
  - .3 Guy wires not permitted for lamppost installation unless supervisor or client has provided written authorization.
  - .4 Structural design calculations to take into account equipment to be installed on poles (service boxes, arms, lighting units, overhead conductors, etc.) in every possible configuration, without requiring guy wires.
- .4 Shop drawings
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Quebec, Canada.
  - .2 Submit wiring diagrams and installation details of equipment indicating proposed location, layout and arrangement, control panels, accessories, piping, ductwork, and other items that must be shown to ensure co-ordinated installation.
  - .3 Identify on wiring diagrams circuit terminals and indicate internal wiring for each item of equipment and interconnection between each item of equipment.
  - .4 Indicate of drawings clearances for operation, maintenance, and replacement of operating equipment devices.
  - .5 If changes are required, notify Departmental Representative of these changes before they are made.

- .6 Submit lamppost drawings, including manufacturer's installation instructions.
- .5 Certificates
  - .1 Provide CSA-certified material.
  - .2 Where CSA-certified material is not available, submit proposed material to authority having jurisdiction for approval before delivery to site.
  - .3 Submit site tests results of installed electrical systems and instrumentation.
  - .4 Permits and fees: in accordance with General Conditions of contract.
  - .5 Submit, upon completion of Work, load balance report as described in PART 3 – LOAD BALANCE.
  - .6 Submit certificate of acceptance from authority having jurisdiction to Departmental Representative upon completion of Work.
- .6 Manufacturer's field reports: submit manufacturer's written report to Departmental Representative within three (3) days of review, verifying compliance of Work and electrical system and instrumentation testing, as described in PART 3 – FIELD QUALITY CONTROL.

## **1.5 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 – Closeout Submittals.
- .2 Submit as-built drawings upon completion of Work.

## **1.6 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 in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect materials from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials and equipment with new.
- .4 Packaging waste management: remove for reuse by manufacturer of packaging materials as specified in waste reduction plan, in accordance with Section 01 74 19 – Waste Management and Disposal.

## **Part 2 Products**

### **2.1 DESIGN REQUIREMENTS**

- .1 Operating voltages: to CAN3-C235.
- .2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.
  - .1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.
- .3 Language operating requirements: provide identification labels and nameplates for control items in French and English.
- .4 Use one nameplate for both languages.

### **2.2 MATERIALS/EQUIPMENT**

- .1 Use CSA-certified materials and equipment. Where CSA-certified material and devices are not available, submit replacement material and equipment to inspection authorities before delivery to site in accordance with PART 1 – ACTION AND INFORMATIONAL SUBMITTALS.
- .2 Factory assemble control panels and component assemblies.

### **2.3 WIRING TERMINATIONS**

- .1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

### **2.4 EQUIPMENT IDENTIFICATION**

- .1 Identify electrical equipment with nameplates as follows:
  - .1 Nameplates on lamppost poles: 3003-H14 aluminum alloy, 0.8 mm thick. Chromate-treated plate covered in DURACRON, series 630 thermosetting enamel, black, with 15% sheen for all structures. Firing of enamel is done at 232 °C.
  - .2 Sizes as follows:

NAMEPLATE SIZES			
Size 1	10 mm x 50 mm	1 line	3 mm high letters
Size 2	12 mm x 70 mm	1 line	5 mm high letters
Size 3	12 mm x 70 mm	2 lines	3 mm high letters
Size 4	20 mm x 90 mm	1 line	8 mm high letters
Size 5	20 mm x 90 mm	2 lines	5 mm high letters
Size 6	25 mm x 100 mm	1 line	12 mm high letters
Size 7	25 mm x 100 mm	2 lines	6 mm high letters

- .2 Wording on nameplates to be approved by Departmental Representative prior to manufacture.
- .3 Inscriptions on nameplates: English and French.

- .4 Junction box nameplates indicating system characteristics and/or voltage.
- .5 Pull boxes: indicate system and voltage.

## **2.5 WIRING IDENTIFICATION**

- .1 Identify wiring with permanent, numbered, indelible identification marking on each end of feeder phase conductors and branch circuit wiring.
- .2 Maintain phase rotation and colour coding throughout.
- .3 Colour coding: to CSA C22.10-18.

## **2.6 WIRE AND CABLE DESIGNATION**

- .1 Identify wiring with permanent indelible identifying markings on coloured plastic tapes on both ends of feeder and branch circuit phase conductors.
- .2 Maintain phase rotation and colour coding throughout.
- .3 Colour coding: to CSA C22.10-18.
- .4 Use colour coded wires in communication cables, matched throughout system.

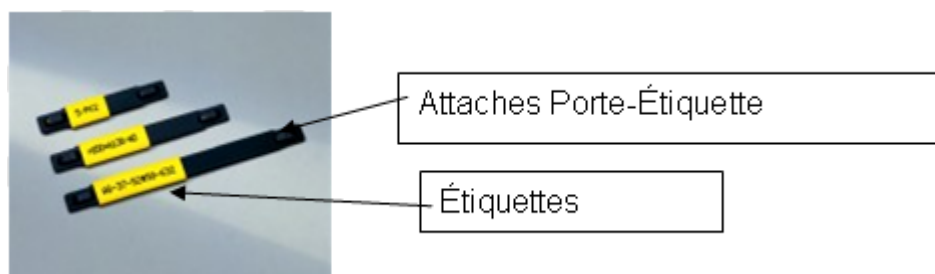
## **2.7 CONDUIT AND CABLE IDENTIFICATION**

### **.1 Sleeve-type labels:**

- 1. Minimum operating temperature: 90 °C.
- 2. Fire retardant coating.
- 3. Suitable diameter for cables on which they are placed.

### **.2 Length:**

- 1. Suitable for cable identifiers provided on wiring lists or Contractor's plans.
- 2. Length of identification: Typically thirty (30) characters; maximum thirty-eight (38) characters.
- 3. Fit all characters on a single line.
- 4. Label holders: PVC, yellow, cadmium-, silicone- and halogen-free, profiled, oval spring, closed, covering full diameter of cable.



**.3 Label holders**

1. Used for large-diameter conduit and cables.
2. Used to hold labels.
3. Affixed to cables or conduit with square-headed cable ties.
4. Dimensions suited to length of label to affix.

**.4 Square-headed cable ties**

1. “Ty-rap” type tie, colour: black.

**.5 Exceptions in restricted spaces**

- .1 In certain exceptional cases, it may not be possible to use labels stipulated above due to lack of space. In these special cases, justified by a Request for Concession approved by Departmental Representative and only for cable end where space is restricted, products such as those fitting description below may be used:
  - .1 8-point font (for labels only).
  - .2 Bold type.
  - .3 Three (3) lines of text.
  - .4 Product sample is illustrated below.



LAMINATED LABEL

**Part 3 Execution**

**3.1 INSPECTION**

- .1 Verification of conditions: verify prior to installation of lighting system and supply and distribution points.
  - .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 INSTALLATION**

- .1 Install to CSA C22.10-18 unless otherwise indicated.
- .2 Do overhead and underground systems in accordance with CAN/CSA-C22.3 No.1 unless otherwise indicated.

### **3.3 NAMEPLATES AND LABELS**

- .1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

### **3.4 COORDINATION OF PROTECTIVE DEVICES**

- .1 Ensure circuit protective devices such as overcurrent trip devices, relays and fuses are installed to required values and settings.
- .2 If HQ is able to provide 120-240V service point characteristics ("nature 412" inquiry) to determine the break point curve for the system where the connection will be made, perform a coordination study to ensure that circuit protection devices such as overcurrent trip devices, relays and fuses are installed and configured according to required values and parameters.
- .3 Coordination study to be based on actual equipment specified; no generic parameters or equipment specifications may be used.
- .4 Ensure coordination study is stamped by a qualified engineer, licensed in the province of Quebec, Canada.
- .5 Submit results.

### **3.5 FIELD QUALITY CONTROL**

- .1 Quality control and work to be performed by:
  - .1 Electrical contractor with following RBQ licenses: "1.4. Contractor – roads and mains," and "16. Contractor – electrical."
  - .2 Master electrician with valid license from the Corporation of Master Electricians of Québec (CMEQ).
- .2 Load balance
  - .1 Measure phase current to panelboards with normal loads (lighting) at time of acceptance of Work. Adjust branch circuit connections as required to obtain best balance of current between phases and record changes.
  - .2 Measure phase voltages at loads and adjust transformer taps, if applicable, to within 2% of rated voltage of equipment.
  - .3 Submit load balancing report once measurements are complete, as stipulated in PART 1 – ACTION AND INFORMATIONAL SUBMITTALS. Ensure report includes phase and neutral currents indicated on panelboards, dry-type transformers and motor control centres, operating under normal load. Include hour and date on which load was measured, and voltage at time of test.

- .3 Conduct following tests in accordance with Section 01 45 00 – Quality Control.
  - .1 Ensure tests are performed by qualified personnel.
    - .1 Include necessary instruments and equipment.
  - .2 Lighting and control devices.
  - .3 Check phase rotation and locate individual conductors of each feeder circuit.
  - .4 Tests:
    - .1 Insulation resistance tests (MEGGER type)
      - .1 Disconnect lighting at pole base. Apply voltage between distribution cables and ground, as well as between cables, according to manufacturer's instructions. Resistance value must be less than 100 megohms.
    - .2 Ground resistance test
      - .1 Check resistance to ground before energizing. Resistance value must be less than 25 ohms.
    - .3 Voltage drop test
      - .1 Measure voltage drop at last lamppost and ensure value meets maximum voltage drop requirement of 3%.
- .4 Submit list of test results to Departmental Representative, with location of each test point, each circuit tested and results of each test. Submit written report, signed by an engineer licensed in Quebec, to Departmental Representative.
- .5 Remove and completely replace any cable failing to meet test requirements.
- .6 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.
- .7 Manufacturer's Services:
  - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit manufacturer's written report as set out in PART 1 – ACTION AND INFORMATIONAL SUBMITTALS.
  - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

### **3.6 SYSTEM STARTUP**

- .1 Instruct Departmental Representative in operation, care and maintenance of systems, system equipment and components.
- .2 Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel.

- .3 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with aspects of its care and operation.
- .4 Notify Departmental Representative at least two weeks before initial commissioning.

### **3.7 CLEANING**

- .1 Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.
  - .1 Leave Work area clean at end of each work day.
- .2 Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.
- .3 Waste management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 – Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**



**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 – Common Work Results for Electrical
- .2 Section 26 05 21 – Wires and Cables (0-1000 V)

**1.2 REFERENCE STANDARDS**

- .1 Canadian Standards Association (CSA Group).
  - .1 CSA C22.10-18, Québec Construction Code, Chapter V – Electricity – 2018.
  - .1 CSA C22.1-15, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
  - .2 CAN/CSA-C22.2 No. 18, Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware.
  - .3 CAN/CSA-C22.2 No. 65, Wire Connectors (Trinational Standard with UL 486A-486B and NMX-J-543-ANCE-03).
  - .4 CAN/CSA C22.2 No. 0 General requirements – Canadian Electrical Code, Part 2.
  - .5 CAN/CSA-C235 – Preferred Voltage Levels for AC systems, 0 to 50,000 V.
- .2 Electrical and Electronic Manufacturers' Association of Canada (EEMAC).
  - .1 EEMAC 1Y-2 – Bushing Stud Connectors and Aluminum Adapters (1200 Ampere Maximum Rating).
- .3 National Electrical Manufacturers Association (NEMA).
- .4 Underwriters Laboratories of Canada (ULC).
- .5 American National Standards Institute (ANSI).

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product data sheets
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for cable and box connectors. Include product characteristics, performance criteria, physical size, finish and limitations.

**1.4 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 – Closeout Submittals.
- .2 Operation and maintenance data sheet: submit operation and maintenance data for cable and box connectors for incorporation into operation and maintenance manual.

## **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 in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect wire and box connectors from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials and equipment with new.
- .4 Packaging waste management: remove for reuse by manufacturer of packaging materials as specified in waste reduction plan, in accordance with Section 01 74 19 – Waste Management and Disposal.

## **Part 2 Products**

### **2.1 EQUIPMENT**

- .1 Pressure-type wire connectors: to CAN/CSA-C22.2 No. 65, with current carrying parts made of copper alloy or copper, sized to fit copper conductors as required.
- .2 Fixture-type splicing connectors: to CAN/CSA-C22.2 No. 65, with current carrying parts made of copper alloy, sized to fit copper conductors 10 AWG or less.
- .3 Bushing stud connectors: to relevant NEMA standards, and consisting of:
  - .1 Connector body and stud clamp for copper conductor.
  - .2 Clamp for round copper conductors.
  - .3 Stud clamp bolts.
  - .4 Bolts for copper conductors.
  - .5 Sized for conductors and bars as indicated.
- .4 Clamps or connectors for non-metallic sheathed cable as required to: CAN/CSA-C22.2 No. 18.

## **Part 3 Execution**

### **3.1 INSPECTION**

- .1 Verification of conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for wire and box connectors 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 INSTALLATION**

- .1 Carefully strip insulation from ends of conductors (cables) and:
  - .1 Apply coat of zinc joint compound on aluminum conductors prior to installation of connectors.
  - .2 Install mechanical pressure-type connectors and tighten screws with appropriate compression tool recommended by manufacturer. Ensure installation meets tightness tests according to CAN/CSA-C22.2 No. 65.
  - .3 Install fixture-type connectors and tighten to CAN/CSA-C22.2 No. 65. Replace insulating cap.
  - .4 Install feed through stud connectors to EEMAC 1Y-2.

### **3.3 CLEANING**

- .1 Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.
  - .1 Leave Work area clean at end of each work day.
- .2 Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.
- .3 Waste management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 – Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**



**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1      Section 26 05 00 – Common Work Results for Electrical
- .2      Section 26 05 20 – Wire and Box Connectors (0-1000 V)

**1.2            REFERENCE STANDARDS**

- .1      Canadian Standards Association (CSA Group).
  - .1      CSA C22.10-18, Québec Construction Code, Chapter V – Electricity – 2018.
  - .1      CSA C22.1-15, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
  - .2      CAN/CSA C22.2 No. 0 General requirements – Canadian Electrical Code, Part 2.
  - .3      CSA C22.2 No. 0.3-09 – Test Methods for Electrical Wires and Cables.
  - .4      CSA C22.2 No. 38 – Thermoset-Insulated Wires and Cables (Trinational Standard with UL 44 and ANCE NMJ-J-451).
  - .5      CAN/CSA C22.2 No. 0 General requirements – Canadian Electrical Code, Part 2.
  - .6      CAN/CSA-C235 – Preferred Voltage Levels for AC systems, 0 to 50,000 V.
- .2      National Electrical Manufacturers Association (NEMA).
- .3      Underwriters Laboratories of Canada (ULC).
- .4      American National Standards Institute (ANSI).

**1.3            PRODUCT DATA SHEETS**

- .1      Submit product data sheets in accordance with Section 01 33 00 – Submittal Procedures.
- .2      Product data sheets
  - .1      Submit manufacturer's instructions, printed product literature and data sheets for cable connectors and terminations. Include product characteristics, performance criteria, physical size, finish and limitations.

**1.4            DELIVERY, STORAGE AND HANDLING**

- .1      Material delivery schedule: provide Departmental Representative with schedule within two (2) weeks of mobilization.
- .2      Protect materials and equipment from damage and provide adequate and appropriate storage facilities for duration of Work. Replace damaged materials and/or equipment.
- .3      Packaging waste management: remove for reuse by manufacturer of packaging materials, in accordance with Section 01 74 19 – Waste Management and Disposal.

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**Part 2            Products**

**2.1            PARKING LOT LIGHTING CABLES**

- .1    This section stipulates wiring for underground conduit installations, internal cabinet wiring, power and distribution connections, and any other wiring necessary to operate the parking lot lighting system.
- .2    Conductors: stranded for 10 AWG and larger. Minimum size: 12 AWG.
- .3    Conductors for overhead aluminum networks: gauge indicated on plans, type NS-75, FT1 with full-size supporting neutral conductor.
- .4    Conductors for underground copper networks: gauge indicated on plans with 1000 V insulation made of cross-linked thermosetting polyethylene material, class RWU90 XLPE.
- .5    Other conductors: copper, type RW90 XLPE or RWU90 XLPE as indicated on plans, rated for 600 V or more, and marked "SL" (sunlight-resistant) or OUTDOOR if they will be exposed to sunlight.
- .6    Colour coding to CSA C22.10-18: green for ground wires, white for neutral, red and black for live wires.
- .7    Ensure all cables are marked at regular intervals with rating, type of insulation and manufacturer's name.
- .8    Twisted wire ends for splices.
- .9    Not all wiring is indicated on drawings. Wiring in schematic drawings indicate the circuit number to use. Provide all wiring required.

**2.2            CABLES**

- .1    If no size is indicated, never use anything smaller than that permitted by electrical code C22.10-18, Section 4 – Conductors.

**Part 3           Execution**

**3.1            FIELD QUALITY CONTROL**

- .1    Perform tests in accordance with Section 26 05 00 – Common Work Results for Electrical.
- .2    Perform tests before energizing electrical system.
- .3    Entrust testing to qualified personnel and provide necessary instruments and equipment.
- .4    Check phase rotation and identify each phase conductor of each feeder circuit.
- .5    Check each feeder circuit for continuity, short circuits and grounds. Ensure resistance to ground of circuits is not less than 50 megohms.
- .6    After installing cable but before connecting, perform insulation resistance test with 1000 V megger on each phase conductor.
- .7    Check insulation resistance after each splice or connection is complete.

- .8 Provide a list of test results with location of each test point, circuit tested and result of each test to Departmental Representative.
- .9 Remove and replace entire length of cable that fails to meet requirements.

### **3.2 GENERAL CABLE INSTALLATION**

- .1 Install cables in conduit to Québec Construction Code, Chapter V – 2018.
- .2 Conductors: copper, except those for overhead cables.
- .3 Voltage drop: maximum 3% to farthest device on a loaded circuit.
- .4 Run 6 AWG conductors or larger in single length between power supply and load. Splices in power supply cables are not permitted.
- .5 Install conductors in conduit without overstressing them. Provide fish paper, if necessary, to prevent conductors from resting against metal enclosures.
- .6 Use only lubricants approved by cable manufacturer for specified cable.
- .7 Shape bypass circuit properly in panels and pull boxes. Secure together using nylon ties.
- .8 Colour code cables to Québec Construction Code, Chapter V – 2018.
- .9 Unless otherwise indicated in plans and specifications, do not splice cables.
- .10 Do not pull spliced cables inside conduit.
- .11 Terminate cables in accordance with Section 26 05 20 – Wire and Box Connectors (0-1000 V).

### **3.3 CLEANING**

- .1 Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.
  - .1 Leave Work area clean at end of each work day.
- .2 Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.
- .3 Waste management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 – Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**



**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 – Common Work Results for Electrical

**1.2 REFERENCE STANDARDS**

- .1 Canadian Standards Association (CSA Group).
  - .1 CSA C22.10-18, Québec Construction Code, Chapter V – Electricity – 2018.
  - .1 CSA C22.1-15, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
  - .2 CAN/CSA C22.2 No. 18, Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware, National Standard of Canada.
  - .3 CSA C22.2 No. 45, Rigid Metal Conduit.
  - .4 CSA C22.2 No. 56, Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.
  - .5 CSA C22.2 No. 83, Electrical Metallic Tubing
  - .6 CSA C22.2 No. 211.2-M1984 (R2003), Rigid PVC (Unplasticized) Conduit.
  - .7 CAN/CSA C22.2 No. 227.3, Mechanical Protection Tubing (MPT) and Fittings, National Standard of Canada.
- .2 National Electrical Manufacturers Association (NEMA).
- .3 Underwriters Laboratories of Canada (ULC).
- .4 American National Standards Institute (ANSI).

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product data: submit manufacturer's printed product literature, specifications and datasheets.
  - .1 Submit manufacturer's printed product literature for proposed conduit, fittings and connections.
- .3 Quality control
  - .1 Test reports: submit certified test reports.
  - .2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
  - .3 Instructions: submit manufacturer's installation instructions.

**1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Waste management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 – Waste Management and Disposal.

- .2 Place materials defined as hazardous or toxic in designated containers.
- .3 Ensure emptied containers are sealed and stored safely for disposal away from children.

## **Part 2 Products**

### **2.1 CABLES AND REELS**

- .1 Provide cables on reels or coils.
  - .1 Mark or tag each cable and outside of each reel to indicate cable length, voltage rating, conductor size, manufacturer's lot number and reel number.
- .2 Each coil or reel of cable to contain only one continuous cable without splices.

### **2.2 CONDUIT**

- .1 Conduit requirements:
  - .1 Rigid metal conduit: to CSA C22.2 No. 45, aluminum, threaded.
  - .2 PVC-coated rigid metal conduit: to CSA C22.2 No. 45., galvanized steel, threaded.
  - .3 Rigid PVC conduit: to CSA C22.2 No. 211.2.
  - .4 Flexible metal conduit: to CSA C22.2 No. 56, liquid-tight flexible, steel.
  - .5 Flexible PVC conduit: to CAN/CSA-C22.2 No. 227.3.
- .2 Applications: for use in direct burial applications, next to reinforced concrete pipes, underground or surface.
- .3 Connections: fittings, couplings, straps, elbows and expansion joints from same manufacturer and material as conduit.

### **2.3 CONDUIT FITTINGS**

- .1 Fittings: to CAN/CSA C22.2 No. 18, manufactured for use with conduit specified. Coating: identical to conduit.
- .2 Factory-made 90°, 45° or 22.5° elbows for 25 mm or larger conduit.
- .3 Ensure non-factory-made conduit elbows are bent by approved bender. Offsets and other turns created by cutting and splicing 90° elbows are not permitted.

### **2.4 EXPANSION FITTINGS FOR RIGID CONDUIT**

- .1 Weatherproof expansion fittings with internal bonding assembly suitable for 100 mm linear expansion.
- .2 Watertight expansion fittings with integral bonding jumper suitable for linear expansion and 19 mm deflection.
- .3 Weatherproof expansion fittings for linear expansion at entry to panel.

## **2.5 PVC CONDUIT AND FITTINGS**

- .1 Rigid PVC conduit, for direct burying, dimensions as indicated, with minimum wall thickness of 2.8 mm at all points.
- .2 Conduit to CSA C22.2 No. 211.0 and No. 211.2, and FT4 flame test rating criteria.
- .3 All necessary PVC fittings, reducers, flared ends, caps, plugs and adapters to form complete installation.
- .4 90° and 45° PVC elbows, as required.
- .5 5° PVC angle fittings, as required.
- .6 Expansion joints as needed.

## **2.6 WELDING SOLVENT**

- .1 Solvent for welding PVC conduit joints.

## **2.7 FISH TAPE**

- .1 After installation is complete, ensure each new conduit has single length fish tape extending 3 m on each end, attached to caps. 6 mm stranded nylon fish tape, tensile strength 5 kN.

## **Part 3 Execution**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

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

### **3.2 INSTALLATION**

- .1 Install all conduit, conduit fittings and accessories in accordance with latest edition of Canadian Electrical Code, so as not to alter, modify or violate any part of installed system components, nor CSA/UL certification of such components.
- .2 Surface-mounted conduit, except in finished areas or as indicated.
- .3 Use rigid PVC conduit underground and buried in or under a concrete slab at ground level.
- .4 Bend conduit cold:
  - .1 Replace conduit if it is bent or flattened more than one tenth of its original diameter.
- .5 Field threads on rigid conduit must be of sufficient length to draw conduits up tight.
- .6 Install fish tape in empty conduit.

.7 Remove and replace sections of blocked conduit.

.1 Do not use liquid to clean conduit.

.8 Dry conduit before installing wire.

### **3.3 CONCEALED CONDUITS**

.1 Run parallel or perpendicular to building or parking lot lines.

### **3.4 CONDUITS UNDERGROUND**

.1 Slope conduits to provide drainage.

.2 Waterproof joints (PVC excepted) with heavy coat of bituminous paint.

### **3.5 CLEANING**

.1 Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.

.1 Leave Work area clean at end of each work day.

.2 Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.

.3 Waste management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 – Waste Management and Disposal.

.1 Remove waste containers, recycling containers and bins from work site and dispose of materials at appropriate facilities.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 – Common Work Results for Electrical

**1.2 REFERENCE STANDARDS**

- .1 Canadian Standards Association (CSA Group).
  - .1 CSA C22.10-18, Québec Construction Code, Chapter V – Electricity – 2018.
  - .1 CSA C22.1-15, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
- .2 National Electrical Manufacturers Association (NEMA).
- .3 Underwriters Laboratories of Canada (ULC).
- .4 American National Standards Institute (ANSI).

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product data: submit manufacturer's printed product literature, specifications and datasheets.
  - .1 Submit manufacturer's printed product literature for photoelectric cells.

**1.4 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 in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect photoelectric devices from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials and equipment with new.

**Part 2 Products**

**2.1 PHOTOELECTRIC LIGHTING CONTROL**

- .1 Photoelectric lighting controls: to CSA C22.10-18.
  - .1 Lighting unit mounting.
  - .2 Controlled lighting load of 1000 W minimum.
  - .3 Voltage variation: plus or minus 10%.
  - .4 Temperature range: minus 40 degrees C to plus 40 degrees C.
  - .5 Lighting units turn on when light level is 1.2 foot-candles.

- .6 Rated for 5000 operations.
- .7 Options:
  - .1 MOV-type surge arrester: minimum of 160 joules.
  - .2 Fail-safe circuit completed when relay de-energized.
  - .3 Twist lock type.
- .8 Delay between 2 and 5 seconds.

### **Part 3 Execution**

#### **3.1 INSPECTION**

- .1 Verification of conditions: verify that conditions of substrates previously installed under other Sections or Contracts are acceptable for photoelectric cell 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 INSTALLATION**

- .1 Install photoelectric controls in accordance with manufacturer's written instructions and to CSA C22.10-18.

#### **3.3 CLEANING**

- .1 Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.
  - .1 Leave Work area clean at end of each work day.
- .2 Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.
- .3 Waste management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 – Waste Management and Disposal.
  - .1 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 lighting control devices installation.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 – Common Work Results for Electrical

**1.2 REFERENCE STANDARDS**

- .1 Canadian Standards Association (CSA Group).
  - .1 CSA C22.10-18, Québec Construction Code, Chapter V – Electricity – 2018.
  - .1 CSA C22.1-15, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
  - .2 CAN/CSA-C22.2 No. 18, Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware.
  - .3 CAN/CSA-C22.2 No. 65, Wire connectors (Trinational Standard with UL 486A-486B and NMJ-J-543-ANCE-03).
  - .4 CAN/CSA C22.2 No. 0 General requirements – Canadian Electrical Code, Part 2.
  - .5 CAN/CSA-C235 – Preferred Voltage Levels for AC systems, 0 to 50,000 V.
- .2 Electrical and Electronic Manufacturers' Association of Canada (EEMAC).
  - .1 EEMAC 1Y-2 – Bushing Stud Connectors and Aluminum Adapters (1200 Ampere Maximum Rating).
- .3 National Electrical Manufacturers Association (NEMA).
- .4 Insulated Cable Engineers Association (ICEA).
- .5 Underwriters Laboratories of Canada (ULC).
- .6 American National Standards Institute (ANSI).

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product data sheets
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for service equipment and main circuit breaker. Include product characteristics, performance criteria, physical size, finish and limitations.

**1.4 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 in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect service equipment from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials and equipment with new.

## **Part 2 Products**

### **2.1 EQUIPMENT**

- .1 Square or rectangular socket, to CSA C22.2 No. 115-M 1989 (R. 1995) for individual (or collective) connection.
- .2 Socket to include circuit-breaker, to above-mentioned CSA standard, for 120/240 V. Ensure master electrician obtains special authorization from the *Régie du bâtiment* to install this type of socket outdoors (refer to Blue Book).

## **Part 3 Execution**

### **3.1 INSPECTION**

- .1 Verification of conditions: verify that conditions of substrates previously installed under other Sections or Contracts are acceptable for service equipment 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 INSTALLATION**

- .1 Install service equipment.
- .2 Connect to incoming service.
- .3 Connect to outgoing load circuits.
- .4 Make grounding connections.
- .5 Make provision for power supply authority's metering.

### **3.3 CLEANING**

- .1 Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.
  - .1 Leave Work area clean at end of each work day.
- .2 Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.

- .3 Waste management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 – Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**



**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 – Common Work Results for Electrical

**1.2 REFERENCE STANDARDS**

- .1 Canadian Standards Association (CSA Group).
  - .1 CSA C22.10-18, Québec Construction Code, Chapter V – Electricity – 2018.
  - .1 CSA C22.1-15, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
  - .2 CSA C22.2 No. 106-05 (R2010), High Rupture Capacity (HRC) Fuses.
- .2 National Electrical Manufacturers Association (NEMA).
- .3 Underwriters Laboratories of Canada (ULC).
- .4 American National Standards Institute (ANSI).

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product data: submit manufacturer's printed product literature, specifications and datasheets.
  - .1 Submit manufacturer's printed product literature for proposed fuses.
  - .2 Ensure submitted shop drawings are signed and stamped by a professional engineer registered or licensed to practice in province of Quebec, Canada.

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Ship fuses in original containers.
- .2 Store fuses in original containers in moisture free location.
- .3 Waste management and disposal
  - .1 Waste management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 – Waste Management and Disposal.
  - .2 Place materials defined as hazardous or toxic in designated containers.
  - .3 Ensure emptied containers are sealed and stored safely for disposal away from children.

**1.5 EXTRA MATERIALS**

- .1 Provide maintenance materials in accordance with Section 01 78 00 – Closeout Submittals.

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**Part 2            Products**

**2.1                FUSES – GENERAL**

- .1        MIDGET-type fuses suitable for 600 V with fibreglass casing and 100 kA RMS minimum breaking capacity were accepted for use in present Work.
- .2        Fuses: from a single manufacturer.
- .3        CSA fuses to C22.2 No. 106.

**2.2                FUSE TYPES**

- .1        Each outdoor lighting unit is protected by one or two fuses, according to 120 V operating voltage.
- .1        Install fuses in Amerace Ltd. (ESNA) type rubber receptacles.
- .2        Fuses: Midget-type, 18 mm x 37 mm, 6 A capacity for 400 W or less lighting units, corresponding to KTK symbol for 250 V or more. Install fuses on live conductors, connecting overhead conductors to lighting units, as shown on plans.

**Part 3            Execution**

**3.1                INSTALLATION**

- .1        Install fuses in mounting devices immediately before energizing circuit.
- .2        Ensure correct fuses fitted to physically matched mounting devices.
- .3        Ensure correct fuses fitted to assigned electrical circuit.

**3.2                CLEANING**

- .1        Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.
  - .1        Leave Work area clean at end of each work day.
- .2        Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.
- .3        Waste management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 – Waste Management and Disposal.
  - .1        Remove waste containers, recycling containers and bins from work site and dispose of materials at appropriate facilities.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 – Common Work Results for Electrical

**1.2 REFERENCE STANDARDS**

- .1 Canadian Standards Association (CSA Group).
  - .1 CSA C22.10-18, Québec Construction Code, Chapter V – Electricity – 2018.
  - .1 CSA C22.1-15, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
  - CSA C22.2 No. 5-13, Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures (Trinational Standard with UL 489 and NMX-J-266-ANCE-2010).
- .2 Electrical and Electronic Manufacturers' Association of Canada (EEMAC)
- .3 National Electrical Manufacturers Association (NEMA).
- .4 Insulated Cable Engineers Association (ICEA).
- .5 Underwriters Laboratories of Canada (ULC).
- .6 American National Standards Institute (ANSI).

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product data sheets
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for circuit-breakers. Include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Include time-current characteristic curves for breakers with rupturing capacity of 22,000 A symmetrical and more at system voltage.

**1.4 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 in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect circuit-breakers from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials and equipment with new.

**Part 2 Products**

**2.1 GENERAL REQUIREMENTS**

- .1 Moulded-case circuit-breakers: to CSA C22.2 No. 5.
- .2 Circuit-breakers to have minimum 22 kA rupturing capacity.

**Part 3 Execution**

**3.1 INSPECTION**

- .1 Verification of conditions: verify that conditions of substrates previously installed under other Sections or Contracts are acceptable for circuit-breaker 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 INSTALLATION**

- .1 Install circuit-breakers according to manufacturer's instructions.
- .2 Connect and ground as required to CSA C22.2 No. 41.

**3.3 CLEANING**

- .1 Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.
  - .1 Leave Work area clean at end of each work day.
- .2 Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.
- .3 Waste management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 – Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 – Common Work Results for Electrical
- .2 Section 26 05 21 – Wires and Cables (0-1000 V)

**1.2 REFERENCE STANDARDS**

- .1 Canadian Standards Association (CSA Group).
  - .1 CSA C22.10-18, Québec Construction Code, Chapter V – Electricity – 2018.
  - .1 CSA C22.1-15, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
  - .2 CSA C22.2 No. 206-17, Lighting Poles.
  - .3 CSA C22.2 No. 206-13, Lighting Poles.
  - .4 CAN/CSA-O15-05(R2009), Wood Utility Poles and Reinforcing Stubs.
  - .5 CAN/CSA-O80 Series-08(R2012), Consolidated – Wood Preservation.
  - .6 CSA C22.2 No. 0 General Requirements – Canadian Electrical Code, Part 2.
  - .7 CAN/CSA-C235 – Preferred Voltage Levels for AC systems, 0 to 50,000 V.
- .2 National Electrical Manufacturers Association (NEMA).
- .3 Underwriters Laboratories of Canada (ULC).
- .4 American National Standards Institute (ANSI).
- .5 Certified Ballast Manufacturer (CBM)
- .6 Illuminating Engineering Society of North America (IESNA)

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product data sheets
  - .1 Submit manufacturer's technical data sheets and printed product literature for road lighting. Include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Submit comprehensive photometric data prepared by a independent testing laboratory for lighting units, as applicable, for Departmental Representative's review.
- .4 Ensure shop drawings are certified by professional engineer authorized to practice in the province of Québec.

**1.4 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 in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect parking lot lighting from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials and equipment with new.

## **Part 2 Products**

### **2.1 WOOD POLES**

- .1 Wood poles: to CAN/CSA-O15, Wood Utility Poles and Reinforcing Stubs.
- .2 Species used are the same as those used for poles intended for power transmission and telecommunication lines, i.e., jack pine or red pine.
- .3 Preservative treatment and conditioning of wood poles are outlined in CAN/CSA-O80 series.
- .4 Ensure structural calculations are performed by qualified engineer to validate pole class, as stipulated in Section 26 05 00.
- .5 Length: 40 feet (12.19 m).

### **2.2 LIGHTING UNIT MOUNTING BRACKETS**

- .1 Aluminum mounting brackets for specified lighting units:
  - .1 Brackets for straight elliptical arms, single or back-to-back, as indicated on plans.
  - .2 Length: 6 feet (1.829 m).
  - .3 Universal aluminum base welded to arm.

### **2.3 LIGHTING UNITS**

- .1 LED lighting unit with cast aluminum weatherproof housing and:
  - .1 Supplied for connection with rated voltage range from 120 V to 240 V.
  - .2 Supplied with 5- or 7-pin swivel-mount photocell receptacle with seal assembly.
  - .3 Colour temperature: 3000 K.
  - .4 Paint: standard grey colour.
  - .5 Label affixed to underside of lighting unit indicating wattage, to ANSI C136.15-2011.
  - .6 Supplied with 10 kV / 5 kA minimum surge protection device.
  - .7 All visible hardware on exterior of lighting unit: 304 stainless steel.
  - .8 Use IP-20 connection block to connect to power system to prevent accidental contact when it is powered.
  - .9 Lighting power and distribution: to indications on plans.

**Part 3            Execution**

**3.1                INSPECTION**

- .1      Verification of conditions: verify that conditions of substrates previously installed under other Sections or Contracts are acceptable for parking lot lighting 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                INSTALLATION**

- .1      Install poles, with arms attached at height indicated on plans, true and plumb, in accordance with manufacturer's instructions.
- .2      Install lighting units on arms according to manufacturer's instructions.
- .3      Adjust lighting units (orientation = 0°, angle = 0°).
- .4      Connect lighting units to circuit as indicated on plans and in Section 26 05 21 – Wires and Cables (0-1000 V).
- .5      Perform tests in accordance with Section 26 05 00 – Common Work Results for Electrical.

**3.3                CLEANING**

- .1      Progress cleaning: clean in accordance with Section 01 74 00 – Cleaning.
  - .1      Leave Work area clean at end of each work day.
- .2      Final cleaning: upon completion of Work, remove surplus materials, waste, tools and equipment in accordance with Section 01 74 00 – Cleaning.
- .3      Waste management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 – Waste Management and Disposal.
  - .1      Remove waste containers, recycling containers and bins from work site and dispose of materials at appropriate facilities.

**END OF SECTION**



**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 33 00 – Submittal Procedures
- .2 Section 02 41 13 – Selective Site Demolition
- .3 Section 31 11 00 – Clearing and Grubbing
- .4 Section 32 01 90.33 – Tree and Shrub Preservation
- .5 Section 32 11 16.01 – Granular Sub-base

**1.2 REFERENCE STANDARDS**

- .1 Ministère des Transports du Québec (MTQ).
  - .1 Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1 All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.

**1.3 SCOPE OF WORK**

- .1 This section covers excavation and backfill required for construction of a temporary parking lot and related Work. Site earthwork includes, without being limited to:
  - .1 Locating structures.
  - .2 Locating and protecting existing structures and utilities, if required.
  - .3 Excavation and stockpiling of topsoil on-site.
  - .4 Additional excavation and backfilling, if required, after stripping topsoil.
  - .5 Preparation of parking lot infrastructure, driveway and sidewalk.
  - .6 Managing and protecting excavated soils (for reuse or disposal), and waste materials.
  - .7 Trenching, protecting and dewatering of excavations.
  - .8 Repairing structures and surfaces damaged by Work.
  - .9 Site cleaning and restoration.

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Inform Departmental Representative in writing of material sources.
- .3 Inform Departmental Representative in writing of excess material disposal site, if applicable.
- .4 Submit borrow material sieve analyses and/or certificates of compliance produced by an independent laboratory to Departmental Representative.

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**Part 2            Products**

**2.1                MATERIALS**

- .1    Reuse excavated materials as fill.
  - .1       Request approval by the Departmental Representative.
  - .2       Reuse materials from excavation, other than topsoil, as fill, if required.
  - .3       Backfill materials:
    - .1           Free of ice and snow, organic materials or any other unsuitable materials.
    - .2           Free of rocks and wood debris.
    - .3           Composed of stones no larger than 300 mm.
    - .4           Compactible with less than 20% passing the 80 µm sieve.
- .2    Borrow material
  - .1       From borrow pit approved by Departmental Representative.
  - .2       Composed of stones no larger than 300 mm.
  - .3       Compactible with less than 20% passing the 80 µm sieve.

**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. Ensure measures comply with requirements of local authorities having jurisdiction and Departmental Representative.
- .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                LAND CLEARING, GRUBBING AND STRIPPING OF TOPSOIL**

- .1    Perform land clearing and grubbing of trees and shrubs not designated for preservation in accordance with Section 31 11 00 – Clearing and Grubbing.
- .2    Salvage ten (10) trees from the coniferous hedge using specialized equipment as outlined in Section 32 01 90.33 – Tree and Shrub Preservation. Ensure salvaged trees come from outer edges of hedge and are selected with Departmental Representative's approval.
- .3    Preserve and protect roots of trees, shrubs and vegetation that won't interfere with Work.
- .4    When needed, and as indicated by Departmental Representative, prune diseased, damaged or dangerous tree branches.
- .5    Turn over (rototill) existing surfaces to be excavated to a minimum depth of 150 mm before stripping topsoil.

- .6 Strip and stockpile topsoil on-site before excavating to depths indicated on plans and approved by Departmental Representative. Stockpile height not to exceed 2 m. Do not mix topsoil with other soil types.
- .7 Once work is complete, use a portion of stockpiled topsoil in areas indicated on plans. Topsoil to be free of wood debris, rocks, etc. Cover topsoil with H-1 hydraulic seeding or sod, depending on location and as indicated on plans.
- .8 Stockpile unused topsoil on-site and cover with H-1 hydraulic seeding.
- .9 Remove clearing and grubbing debris from stripping.

### **3.3 EXCAVATION**

- .1 Excavate in accordance with Article 11.4 of the CCDG.
- .2 Remove asphalt pavement according to Section 02 41 13 – Selective Site Demolition.
- .3 Submit waste disposal plan to Departmental Representative prior to starting Work, if required.

### **3.4 BACKFILL**

- .1 When backfilling excavations below subgrade line, use backfill materials in following order of priority:
  - .1 Excavated compactable soil.
  - .2 Compactable borrow material.
- .2 Unless Departmental Representative indicates otherwise, do not backfill with frozen materials or backfill on top of frozen materials. Whenever possible, prioritize reuse of site materials.
- .3 Drain low areas before placing materials. Backfill with materials across entire width of surface to cover in lifts no more than 300 mm thick before compaction; then compact entire lift.
- .4 Grade surface profile to ensure proper drainage and protect from erosion due to runoff.
- .5 Grade infrastructure profile in accordance with plans and specifications, with 25-mm tolerance.

### **3.5 INFRASTRUCTURE INSTABILITY**

- .1 If infrastructure is unstable, excavate unstable materials and replace with dry and stable materials, as approved by Departmental Representative.
- .2 When infrastructure is unstable due to use of over-saturated material, assume all costs to replace with dry and stable material.

**END OF SECTION**



**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 74 19 – Waste Management and Disposal
- .2 Section 31 00 00.01 – Earthwork – Short Form
- .3 Section 32 01 90.33 – Tree and Shrub Preservation

**1.2 REFERENCE STANDARDS**

- .1 Ministère des Transports du Québec (MTQ).
  - .1 Cahier des charges et devis généraux – Infrastructures routières – Construction et réparation, 2021 Edition (CCDG).
    - .1 All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.
- .2 Guide de caractérisation des terrains (Guide to Site Characterization) published by Ministère de l'Environnement et de la Lutte Contre les Changements Climatiques.

**1.3 DEFINITIONS**

- .1 Clearing consists in cutting off trees and brush vegetative growth to not more than specified height above ground and disposing of felled trees, previously uprooted trees and stumps, and surface debris.
- .2 Clearing isolated trees consists in cutting off designated trees no higher than specified height above ground and disposing of felled trees and debris.
- .3 Grubbing consists in excavating and disposing of stumps and roots to not less than specified depth below existing ground surface.

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .3 Provide manufacturer's installation instructions.

**1.5 QUALITY ASSURANCE**

- .1 Implement occupational health and safety measures required in accordance with Section 01 35 29.06 – Health and Safety Requirements.

**1.6 STORAGE AND PROTECTION**

- .1 Protect fences, trees, landscaped areas, natural features, tree roots, paved areas, utilities and site appurtenances to remain.
  - .1 Repair damaged items to Departmental Representative's satisfaction.

- .2 Replace trees designated to remain, if damaged, as directed by Departmental Representative.

## **1.7 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 – Waste Management and Disposal.

## **Part 2 Products**

### **2.1 MATERIALS/EQUIPMENT**

- .1 Bituminous-based paint of standard manufacture, specially formulated for tree wounds.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Inspect site and verify, with Departmental Representative, items designated to remain.
- .2 Locate and protect utility lines; ensure active utilities traversing site remain in working order.
  - .1 Notify Departmental Representative immediately of damage to or when unknown existing utility lines are encountered.
  - .2 When utility lines to be removed are encountered within area of operations, notify Departmental Representative in ample time to minimize interruption of service.
- .3 Notify utility authorities before starting clearing and grubbing.
- .4 Keep roads and sidewalks free of dirt and debris.

### **3.2 COMPLIANCE**

- .1 Manufacturer's instructions: comply with manufacturer's written recommendations and specifications, including product technical bulletins, handling, storage and installation instructions, as well as data sheet indications.

### **3.3 CLEARING**

- .1 Clearing includes felling, cutting and trimming of trees into sections, as well as satisfactory disposal of trees and other vegetation designated for removal, including brush, downed timber, rubbish and snags occurring within cleared areas.
- .2 Cut trees to ground level, as directed by Departmental Representative.
- .3 Cut down trees and cut off branches overhanging area cleared as directed by Departmental Representative.
- .4 Grub out stumps from areas where rough clearing is done.

- .5 Cut off unsound branches on trees designated to remain as directed by Departmental Representative.
- .6 Paint cuts more than 3 cm in diameter on preserved trees with approved tree wound paint.

### **3.4 ISOLATED TREES**

- .1 Cut isolated trees to ground level, as directed by Departmental Representative.
- .2 Grub out isolated tree stumps.

### **3.5 GRUBBING**

- .1 Remove and dispose of matted roots, roots larger than 7.5 cm in diameter and designated stumps.
- .2 Grub out stumps and roots to not less than 1000 mm below ground surface.
- .3 Grub out visible rock fragments and boulders when largest dimension is more than 300 mm, but less than 0.25 m<sup>3</sup>.
- .4 Fill depressions made by grubbing with suitable material to make new surface conform with existing adjacent ground surface.

### **3.6 WASTE REMOVAL AND DISPOSAL**

- .1 Haul and dispose of waste from clearing and grubbing trees to site approved in accordance with standards in force and as approved by Departmental Representative.
- .2 Remove diseased trees identified by Departmental Representative and dispose of waste using method approved by Departmental Representative.

### **3.7 FINISHING**

- .1 Leave ground surface in condition suitable for stripping of topsoil, to Departmental Representative's approval.

### **3.8 CLEANING**

- .1 Clean in accordance with Section 01 74 00 – Cleaning.
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment from construction site.

**END OF SECTION**



**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 Ministère des Transports du Québec (MTQ).
  - .1 Collection Normes – Ouvrages routiers, Tome VII – Matériaux, latest edition.
  - .2 Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1 All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.
- .2 Bureau de normalisation du Québec (BNQ)
  - .1 NQ 2560-114: Civil Engineering Work – Aggregates.

**1.2 DEFINITIONS**

- .1  $D_{50}$ : Size of sieve opening through which 50% of material mass passes.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide to Departmental Representative, before first site delivery, a certificate of conformity for each source of stone containing information about minimum and maximum calibre of stones, location of stockpile and area sourced.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Stone
  - .1 Quarry stone obtained from blasting, hard and free from seams, cracks or other structural defects.
  - .2 To category 5 large aggregate requirements set out in NQ 2560-114, as well as those in Table 14501-1 of MTMDET's standard 14501.
  - .3 Size varying between 100 mm and 200 mm, with  $D_{50}$  of 150 mm.
- .2 Geotextile
  - .1 Use non-woven needle-punched geotextile compliant with type V of MTMDET's 13101 standard and requirements from Section 31 32 19.16 – Geotextile Soil Stabilization.

**Part 3            Execution**

**3.1                INSTALLATION**

- .1      Fine grade area to be rip-rapped to uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.
- .2      Ensure geotextile placed on surface is straight and free of residue. Avoid puncturing geotextile. Vehicular traffic over geotextile not permitted.
- .3      Lay 300-mm thickness of rip-rap.
- .4      Place stones carefully to ensure they are well embedded against each other in all directions, avoiding unevenness and protrusions from the average stone gauge.

**END OF SECTION**

**Part 1            General**

**1.1            SCOPE OF WORK**

- .1        This section pertains to protection and maintenance of ten (10) existing conifer trees to be transplanted.

**1.2            RELATED WORK**

- .1        Section 32 91 19.13 – Topsoil Placement and Grading
- .2        Section 32 92 23 – Sodding

**1.3            REFERENCE STANDARDS**

- .1        Department of Justice Canada
  - .1        Canadian Environmental Protection Act, 1999 (CEPA), c. 33.
  - .2        Fertilizers Act (R.S.C., 1985, C. F-10).
  - .3        Fertilizers Regulations (C.R.C., c. 666).
  - .4        Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.
- .2        Health Canada – Pest Management Regulatory Agency (PMRA).
  - .1        Standard for Pesticide Education, Training and Certification in Canada.

**1.4            WORK SCHEDULE**

- .1        Establish construction work schedule as indicated herein.
- .2        Notify Departmental Representative at least seven (7) days before start of Work.
- .3        Review Work on-site with Departmental Representative before start of Work.
- .4        Obtain Departmental Representative's approval as indicated herein before start of Work.

**1.5            DEFINITIONS**

- .1        Mycorrhiza: symbiotic association between fungus and roots of plants. This symbiosis enhances plant establishment in newly landscaped and imported soils.

**1.6            ACTION AND INFORMATIONAL SUBMITTALS**

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

**1.7            MAINTENANCE DURING WARRANTY PERIOD**

- .1        From time trees are transplanted until Work is complete, perform following maintenance operations:
  - .1        Water to maintain soil moisture conditions for optimum growth and health of plant material without causing erosion.
  - .2        Apply fertilizer to promote tree root regrowth after transplanting.

- .3 Remove dead, broken or hazardous branches from plant material. Dispose of debris through environmentally sound method, composting, mulching or regulations in force for trees affected by disease or virus.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Water: potable.
- .2 Temporary protection: Cover tree roots temporarily with filtering fabric made of non-woven geotextile and held in place with pegs or stakes. Place within one hour of exposing roots.
- .3 Fertilizer:
  - .1 Synthetic commercial type according to manufacturer's recommendations.
- .4 Mycorrhizae
  - .1 Inoculant: mycorrhizal fungi containing 15 spores/g of *Glomus intraradices*,  $1 \times 10^5$  spores/g of *Pisolithus tinctorius*,  $7.5 \times 10^3$  spores/g of *Scleroderma cepa*,  $7.5 \times 10^3$  spores/g of *Scleroderma citrinii*,  $3.75 \times 10^3$  spores/g of *Rhizopogon roseolus*,  $3.75 \times 10^3$  spores/g of *Rhizopogon subscaerelescens*,  $3.75 \times 10^3$  spores/g of *Rhizopogon villosulus*,  $3.75 \times 10^3$  spores/g of *Rhizopogon vulgaris*, and  $2.25 \times 10^3$  spores/g of *Laccaria laccata*. Amount of inoculant required for transplanting trees: 250 mL.
    - .1 Ensure roots are in contact with mycorrhizae.
    - .2 Use mycorrhizae as recommended in manufacturer's written recommendations.
- .5 Mulch
  - .1 Mulch: ramial chipped wood (RCW).
    - .1 Cover entire surface of planting beds with 100 mm (4 in.) of mulch.

## **Part 3 Execution**

### **3.1 IDENTIFICATION**

- .1 Implement occupational health and safety measures required in accordance with General Contract Conditions.
- .2 Identify plants to preserve and outline root systems, as directed by Departmental Representative.
- .3 Protect plant and root systems from damage, settling and contamination resulting from construction, as directed by Departmental Representative.
- .4 Never compact soil in area extending beneath reach of tree branches without Departmental Representative's prior approval. Plan to place plywood, metal sheets, sand, etc. before allowing heavy equipment to access unprotected area beneath branches of trees on site.

- .5 Ensure no root pruning is done inside drip line. If pruning inside drip line is required, consult an arborist or Canadian Certified Horticultural Technician (CCHT), as directed by Departmental Representative.

### **3.2 EXCAVATION AND PREPARATION OF PLANTING BEDS**

- .1 Prepare planting beds.
- .2 Individual planting holes
  - .1 Trees: dig hole two times wider than root ball diameter.
  - .2 Remove subsoil, rocks, roots, debris and toxic material from excavated material that will be used as planting soil for trees and individual shrubs. Dispose of excess material.
  - .3 Scarify sides of planting hole.
  - .4 Remove water that infiltrated excavations prior to planting trees. Notify Departmental Representative if water is groundwater.
- .3 Excavate using approved methods and as directed by Departmental Representative. Use specialized machinery intended for this type of work. Expect to excavate rhizosphere by hand or using any other technique prescribed by Departmental Representative to protect existing roots.
- .4 Trim or preserve and protect roots as directed by Departmental Representative. Obtain Departmental Representative's approval of site before beginning Work.
- .5 Temporarily cover exposed tree root systems using geotextile held in place by pegs or stakes. Place within one hour of exposing roots.
- .6 Transplant as soon as possible.

### **3.3 TRANSPLANTING**

- .1 Submit work method to Departmental Representative for approval, outlining transplanting process with appropriately sized transplanter to maximize chances for success.
- .2 If transplanting immediately:
  - .1 Excavate hole with three-spade hydraulic tree spade mounted to back of a tree removal truck.
  - .2 Extricate trees carefully with transplanting or extraction equipment, ensuring root balls remain intact.
  - .3 Transplant tree in vertical position, directly to intended location.
- .3 If tree cannot be transplanted due to underground obstacles (rock, wood, concrete or other), Departmental Representative will render decision to abort transplanting and transfer machinery to a different tree to transplant.
- .4 Root cutting:
  - .1 Ensure specialized personnel perform a clean or surgical cut of all tree roots exposed and broken by excavation operations or removal of existing structures, as directed by Departmental Representative.

- .5 Transplanting:
  - .1 Add planting soil and required amount of mycorrhizal inoculant to bottom of hole and directly to lower half of root ball circumference. Ensure root ball is in contact with inoculant before backfilling. Backfill in successive layers.
    - .1 Ensure tree is straight and plumb and crown is flush with ground level.
    - .2 Tamp each lift to eliminate air pockets.
    - .3 When two thirds of depth of planting pit has been backfilled, fill remaining space with water.
    - .4 After water has penetrated into soil, backfill to finish grade.
- .6 Water plant material thoroughly.
- .7 After soil settlement has occurred, fill with soil to finish grade.

### **3.4 MULCHING**

- .1 Ensure soil settlement has been corrected prior to mulching.
- .2 Spread mulch as indicated.

### **3.5 FERTILIZER AND MYCORRHIZAE**

- .1 Mycorrhizae: to manufacturer's specifications, and at least the following:
  - .1 Trees: add 500 mL of mycorrhizae in each planting hole.

### **3.6 WATERING**

- .1 Water all vegetation at least three (3) times per week between May 15 and September 15, in accordance with watering schedule submitted to Departmental Representative weekly for approval.
- .2 Keep exposed roots moist during excavation, in accordance with Article 3.5 of this Section.
- .3 Evenly soak areas to depth of 300 mm using spray stream to prevent compacting soil and damaging vegetation.

### **3.7 PRUNING**

- .1 Prune trees and shrubs as directed by Departmental Representative.
- .2 Prune crown to compensate for root loss while maintaining general form and character of plant. Dispose of debris through ecologically sound method.

### **3.8 ANTI-DESICCANT**

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

**END OF SECTION**

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**Part 1            General**

**1.1            SCOPE OF WORK**

- .1        This section specifies granular materials to use as sub-base and sub-grade for roads and as support materials for cast-in-place concrete elements.

**1.2            RELATED REQUIREMENTS**

- .1        Section 03 30 00 – Cast-in-Place Concrete
- .2        Section 31 00 00.01 – Earthwork – Short Form
- .3        Section 32 16 00 – Curbs, Gutters and Sidewalks

**1.3            REFERENCE STANDARDS**

- .1        Ministère des Transports du Québec (MTQ).
  - .2        Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1        All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.
- .2        Bureau de normalisation du Québec (BNQ)
  - .1        NQ 2560-114: Civil Engineering Work – Aggregates.

**1.4            ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Inform Department and its Representative of material supply sources. Materials must originate from authorized sites, in accordance with Regulation Respecting Pits and Quarries.
- .2        Submit borrow material sieve analyses and/or certificates of compliance produced by an independent laboratory to Departmental Representative.
- .3        Appoint an approved laboratory to sample and perform tests necessary to qualify and attest to material compliance at source.
- .4        Clearly identify each material source used for this Work.

**Part 2            Products**

**2.1            MATERIALS**

- .1        Granular sub-grade material: MG-112 materials, to NQ 2560-114 – Civil Engineering Work – Aggregates, after placement and compaction of materials.
- .2        Base materials: MG-20 materials, to NQ 2560-114 – Civil Engineering Work – Aggregates, after placement and compaction of materials. Gradations for reserve MG-20 granular material used in sub-base: to CCDG Article 12.3.1.

- .3 Clean stone: 20 mm clean aggregate to NQ 2560-114 – Civil Engineering Work – Aggregates.

### **Part 3 Execution**

#### **3.1 INSTALLATION**

- .1 Place granular materials after prior layer has been inspected and approved by Departmental Representative.
- .2 Construct granular sub-grade to depth and grade in areas indicated.
- .3 Ensure no frozen material is placed.
- .4 Place material on clean, unfrozen surface free from snow or ice.
- .5 Place granular materials using methods that prevent segregation and deterioration.
- .6 Spread material to full width of surface to cover in uniform lifts not exceeding 300 mm compacted thickness. Departmental Representative may authorize thicker lifts if specified compaction can be achieved.
- .7 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
- .8 Remove and replace portions of lifts where material has become segregated during spreading.

#### **3.2 COMPACTION**

- .1 Ensure compaction equipment is capable of producing required material densities.
- .2 Unless otherwise specified on plans, compact materials as follows to obtain:
  - .1 95% of Modified Proctor for sub-grade materials.
  - .2 98% of Modified Proctor for sub-base materials from pits and gravel quarries and for support bedding.
  - .3 98% of optimum density of trial section, determined according to Article 12.3.3.4 of the CCDG for sub-base materials from quarries.

#### **3.3 ACCEPTANCE, REJECTION AND REVISION OF UNIT PRICES**

- .1 Batches are formed and accepted in accordance with Article 12.2.4 of the CCDG for sub-grade materials, and with Article 12.3.4 of the CCDG for sub-base materials. When surface area of granular materials is less than 7500 m<sup>2</sup>, collect a minimum of three (3) samples.
- .2 Batches or individual samples are rejected in accordance with Articles 12.2.4.2 and 12.2.4.3 of the CCDG for sub-grade materials, and Article 12.3.4.1 for sub-base materials. Contractor has right of recourse, in accordance with Articles 12.2.4.4 and 12.3.4.2 of the CCDG.

- .3 In case of non-compliance, unit prices will be revised in accordance with Article 12.2.5.1 of the CCDG for sub-grade materials and Article 12.3.5 of the CCDG for sub-base materials.

### **3.4 TOLERANCES**

- .1 Place materials to meet following tolerances between theoretical and actual levels of sub-grade and sub-base materials.

Layer	Tolerance
Sub-grade	20 mm
Sub-base	10 mm

### **3.5 PROTECTION AND REPAIR OF FINISHED SUB-BASE LAYER**

- .1 Maintain finished sub-base in condition conforming to this section until succeeding layer is constructed. Protect and, as needed, repair surfaces eroded by runoff water, traffic or contamination.
- .2 Assume all costs to supply, place and remove materials to decontaminate a surface.

**END OF SECTION**



**Part 1 General**

**1.1 SCOPE OF WORK**

- .1 This section covers asphalt pavement work, which specifically consists of paving a temporary parking lot and building an asphalt sidewalk using ESG-14 or ESG-10 mix, depending on the sector.

**1.2 RELATED REQUIREMENTS**

- .1 Section 32 11 16.01 – Granular Sub-Base.

**1.3 REFERENCE STANDARDS**

- .1 Ministère des Transports du Québec (MTQ).
  - .1 Collection Normes – Ouvrages routiers, Tome VII – Matériaux, latest edition.
  - .2 Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1 All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.
- .2 Bureau de normalisation du Québec (BNQ).
  - .1 NQ 2560-114: Civil Engineering Work – Aggregates.

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Inform Departmental Representative in writing of material sources.
- .2 Submit all asphalt mix designs used on this project to Departmental Representative for approval.

**1.5 DENSITY TESTING**

- .1 A representative of Laboratory mandated by the Department performs density tests on asphalt pavement using a nuclear densometer, in accordance with CCDG requirements. If one batch of pavement is found to be non-compliant, assume costs to replace that layer of asphalt within three (3) days.

However, if average value is between 89.0% and 93.0%, asphalt may be left in place if Contractor agrees that a portion of payment will be withheld to compensate for observed deficiencies.

Aforementioned withheld sum for non-compliant asphalt density is determined by multiplying price of asphalt and affected quantity by a correction factor.

Withheld Sum = Quantity x UP x Cf

UP: Unit price of asphalt, including materials, manufacturing, transport and placement, as well as incidentals.

Cf: 0.125 (93.0 – D)

D: Average batch density, rounded to the nearest tenth (%).

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Asphalt cement: To MTQ standard 4101, "Bitumes." Asphalt performance class in accordance with indications of this Article.
- .2 Granular materials: To NQ 2560-114 – Civil Engineering Work – Aggregates and classes indicated in this article.

Segment	Layer	Type of asphalt mix	Thickness	Asphalt class	Class of aggregates	
					Coarse aggregate	Fine aggregate
Parking	Single lift	ESG-14	70 mm	PG 58H-34	3c	2
Waterways	Single lift	ESG-14	80 mm	PG 58H-34	3c	2
Asphalt pavement sidewalk	Single lift	ESG-10	50 mm	PG 58H-34	3c	2

## **Part 3 Execution**

### **3.1 PLACEMENT**

- .1 Place asphalt pavement in accordance with this section and the CCDG.

### **3.2 PAVEMENT TESTING AND ACCEPTANCE**

- .1 With a representative from Laboratory mandated by the Department in attendance, take one (1) sampling for every 300 tons of asphalt. Samplings should be taken by a certified laboratory mandated by Contractor.
- .2 Collect a minimum of two samplings per type of asphalt mix. Submit two (2) samples of each sampling to Laboratory mandated by the Department: one (1) sample for analysis and one (1) sample for Contractor's appeal. A batch consists of 1500 tons of a single type of asphalt mix.
- .3 If asphalt mix quality is non-compliant, correct affected surfaces in accordance with provisions stipulated in the CCDG.

### **3.3 CONNECTION TO EXISTING ROADWAY**

- .1 Make saw cuts in existing pavement as indicated on plans, at intersection of existing pavement and proposed pavement. Ensure sawn surfaces are straight, clean and square.

**3.4 TACK COAT**

- .1 Apply a tack coat along curbs and sawed joints, in accordance with Article 13.2 of the CCDG.

**END OF SECTION**



**Part 1 General**

**1.1 SCOPE OF WORK**

- .1 This section addresses work to build cast-in-place concrete curbing.

**1.2 RELATED REQUIREMENTS**

- .1 Section 03 30 00 – Cast-in-Place Concrete.
- .2 Section 32 11 16.01 – Granular Sub-Base.

**1.3 REFERENCE STANDARDS**

- .1 Ministère des Transports du Québec (MTQ).
  - .1 Collection Normes – Ouvrages routiers, Tome VII – Matériaux, latest edition.
  - .2 Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1 All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.
- .2 Bureau de normalisation du Québec (BNQ).
  - .1 NQ 1809-500: Construction Work – Concrete Sidewalks and Curbs.

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Refer to Section 03 30 00 – Cast-in-Place Concrete and Section 32 11 16.01 – Granular Sub-Base for the support bedding.

**1.5 MATERIALS**

- .1 Concrete: in accordance with Section 03 30 00 – Cast-in-Place Concrete.
- .2 Support bedding: in accordance with Section 32 11 16.01 – Granular Sub-Base.

**Part 2 Execution**

**2.1 GRANULAR BASE**

- .1 Place backfill material in lifts no more than 150 mm thick and compact to minimum 95% of Modified Proctor. Dampen subgrade before placing concrete.

**2.2 CAST-IN-PLACE CONCRETE CURB**

- .1 Obtain Departmental Representative's approval for granular base, levels and alignments prior to placing concrete.
- .2 Use solidly anchored metal formwork to obtain straight, square and smooth forms.
  - .1 Adjust formwork accordingly to create universal accesses.

- .3 Pour fresh concrete in forms, ensuring dimensions shown on plans are met. Never add water to concrete mix.
- .4 Corner fillet radius: 20 mm.
- .5 Saw curbing to depth of 100 mm every 6 m.
- .6 Cure concrete in accordance with Section 03 30 00 – Cast-in-Place Concrete.

**2.3 TOLERANCES**

- .1 Finish surfaces to within 3 mm in 3 m, as measured with 3 m straightedge placed on surface.

**2.4 BACKFILL**

- .1 Allow concrete to cure for seven (7) days prior to backfilling.
- .2 Backfill to designated elevations with material as indicated on plans. Compact and shape.

**END OF SECTION**

## **Part 1        General**

### **1.1        REFERENCE STANDARDS**

- .1    Ministère des Transports du Québec (MTQ).
  - .1    Collection Normes – Ouvrages Routiers, Tome V – Signalisation routière, latest edition.
  - .2    Collection Normes – Ouvrages routiers, Tome VII – Matériaux, latest edition.
  - .3    Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1    All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.
- .2    United States Federal Standard (U.S. FED-STD)
  - .1    U.S. FED-STD 595: Colors Used in Government Procurement.

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

- .1    Submit templates for required symbols and markings.
- .2    At least two (2) weeks before Work begins, submit following documents regarding proposed materials to Departmental Representative:
  - .1    Required technical data sheets and manufacturer documentation. Technical data sheets to indicate products' physical and chemical characteristics, storage conditions, instructions for surface preparation, installation methods and conditions, marking product application rates as well as glass microbead type and application rate.
- .3    No later than when marking products are delivered, submit certificate of conformity issued by manufacturer to Departmental Representative, certifying that paint or microbeads were produced in accordance with requirements stipulated in this specification. Certificate to indicate manufacturer's name, product code, product type, batch number, date and place of manufacture, reference standard, as well as analysis and test results.

## **Part 2        Products**

### **2.1        MATERIALS**

- .1    Paint
  - .1    Water-based: to requirements of standard 10204 of MTMDET's Tome VII "Matériaux" for markings done before October 15.
  - .2    Colour: yellow, to standard reference No. 33538 of U.S. FED-STD 595.
  - .3    Colour: white, to standard reference No. 37875 of U.S. FED-STD 595.

- .4 Departmental Representative will provide list of qualified paint products applicable to work upon request. Qualified paints may be used but Departmental Representative reserves right to perform further tests.
- .2 Glass microbeads
  - .1 To standard 14601 of MTMDET's Tome VII "Matériaux."
- .3 Single-use marking template
  - .1 Rigid and in good condition.
  - .2 Use of tape to outline markings on ground is prohibited.

### **Part 3 Execution**

#### **3.1 EQUIPMENT**

- .1 Paint applicator: approved pressure-type, mobile, with positive shut-off distributor capable of applying paint in continuous single or double lines and dashed lines, and capable of applying marking components evenly, at rates specified, and to dimensions indicated.

#### **3.2 SURFACE CONDITION**

- .1 Pavement surface: dry, free from water, frost, ice, dust, oil, grease and other deleterious materials.

#### **3.3 EXECUTION**

- .1 Pre-marking: determine marking layout and obtain approval from Departmental Representative.
- .2 Unless otherwise indicated by Departmental Representative, apply paint only when pavement surface is dry, wind speed is below 30 km/h, pavement temperature is below dew point temperature plus 2 degrees C, air temperature is above 10 degrees C, and no rain is forecast within next four (4) hours.
- .3 Unless otherwise indicated on plans, lay out longitudinal and transverse markings to dimension indicated in "Annexe A" of Chapter 7 of MTMDET's Tome V.
- .4 Unless otherwise indicated on plans, lay out symbols and letters to dimensions indicated in "Annexe B" of Chapter 7 of MTMDET's Tome V.
- .5 Apply paint evenly at rate of 3 m<sup>2</sup>/L.
- .6 Obtain Departmental Representative's approval to thin paint.
- .7 Paint lines of uniform colour and density with sharp edges.
- .8 Thoroughly clean distributor tank before refilling with paint of different colour.
- .9 Apply glass beads in manner that ensures they are incorporated and distributed uniformly. Apply glass beads immediately after applying paint, at minimum rate of 0.6 kg/L of paint.

**3.4 TOLERANCE**

- .1 Paint markings: within 12 mm of dimensions indicated.
- .2 Remove incorrect markings as indicated by Departmental Representative.

**3.5 MARKING PROTECTION**

- .1 Protect pavement markings until dry.
- .2 If needed, supply and install appropriate cones, barricades, signs and lights.

**END OF SECTION**



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**Part 1            General**

**1.1                RELATED REQUIREMENTS**

- .1      Section 31 00 00.01 – Earthwork – Short Form
- .2      Section 31 11 00 – Clearing and Grubbing
- .3      Section 32 01 90.33 – Tree and Shrub Preservation
- .4      Section 32 92 19.16 – Hydraulic Seeding
- .5      Section 32 92 23 – Sodding

**1.2                SCOPE OF WORK**

- .1      Perform Work required under this Section, in accordance with documents. Reuse stockpiled topsoil by spreading it for sodding and hydraulic seeding.

**1.3                REFERENCE STANDARDS**

- .1      Ministère des Transports du Québec (MTQ).
  - .1      Collection Normes – Ouvrages routiers, Tome VII – Matériaux, latest edition.
  - .2      Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 édition (CCDG).
    - .1      All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.

**Part 2            Products**

**2.1                MATERIALS**

- .1      Reuse stockpiled topsoil from excavation.

**Part 3            Execution**

**3.1                PREPARATION OF EXISTING SUBGRADE**

- .1      Verify that grades are correct. If discrepancies occur, notify Departmental Representative and begin work only after receiving Departmental Representative's authorization to do so.
- .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. Remove soil contaminated with calcium chloride, toxic materials and petroleum products, as well as any debris that rises 75 mm above ground surface. Dispose of removed material off site.

**3.2                PLACING AND SPREADING OF TOPSOIL**

- .1      Place topsoil after Departmental Representative has accepted subgrade.
- .2      Spread topsoil in uniform lifts measuring 100 mm after settling.

- .3 Manually spread topsoil around trees, shrubs and obstacles.

### **3.3 FINISHING GRADING**

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

### **3.4 RECEIPT**

- .1 Departmental Representative will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading.

### **3.5 SURPLUS MATERIALS**

- .1 Stockpile surplus topsoil on-site, as indicated on plans.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

Section 32 91 19.13 – Topsoil Placement and Grading.

**1.2 SCOPE OF WORK**

- .1 Work includes soil preparation and cleaning, seeding and maintaining seeded areas.

**1.3 ADMINISTRATIVE PROCEDURES**

- .1 Work schedule
  - .1 Schedule hydraulic seeding to coincide with preparation of soil surface. Hydraulic seeding seasonal limits:
    - .1 Start of thaw through June 15 (spring).
    - .2 August 15 through September 15 (fall).

**1.4 REFERENCE STANDARDS**

- .1 Ministère des Transports du Québec (MTQ).
  - .1 Collection Normes – Ouvrages routiers, Tome VII – Matériaux, latest edition.
  - .2 Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1 All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.
- .2 Comply with federal and provincial legislation pertaining to pesticide use (Environment Quality Act and Pesticides Act).

**1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit hydraulic seeding product data sheets.

**1.6 WARRANTY**

- .1 Warranty seeded areas until acceptance of seeding work.

**Part 2 Products**

**2.1 SEED MIXTURE**

- .1 Seed mixture for dry zone, i.e. seeding of stockpiled excavated topsoil, to be composed of following species and applied at a rate of 200 kg/ha. Mixture reaches a height at maturity of 30 to 45 cm. Roots deeply and used to stabilize slopes. Can be planted in a variety of soils and grows well in sunny and semi-shaded conditions. Seed mixture composition:
  - .1 21% Timothy (*Phleum pratense* var. Timothy).
  - .2 20% Aberdeen creeping red fescue (*Festuca rubra* subsp. *rubra* var. Aberdeen).
  - .3 20% Deputy tall fescue (*Festuca arundinacea* var. Deputy).
  - .4 15% Crested wheatgrass (*Agropyron cristatum*).

- .5 15% iQ / Plateau perennial ryegrass (*Lolium perenne* var. iQ / Plateau).
- .6 5% Bird's-foot trefoil (*Lotus corniculatus*).
- .7 4% White clover (*Trifolium repens*).
- .8 Seed mixture: Canada No. 1 grade.
- .2 Seed mixture for wet areas, i.e. ditch, to be composed of following species and applied at a rate of 240 kg/ha. Mixture reaches a height at maturity of 40 to 50 cm. It is generally used in retention ponds and ditches, and is salt tolerant. Can be planted in a variety of soils and grows well in sunny and semi-shaded conditions. Seed mixture composition:
  - .1 47% Aberdeen creeping red fescue (*Festuca rubra* subsp. *rubra* var. Aberdeen).
  - .2 20% Predator hard fescue (*Festuca trachyphylla* var. Predator).
  - .3 15% Canada bluegrass (*Poa compressa*).
  - .4 5% Red Top / Highland common bentgrass (*Agrostis alba* var. Red Top / Highland).
  - .5 5% White clover (*Trifolium repens*).
  - .6 5% Bird's-foot trefoil (*Lotus corniculatus*).
  - .7 3% Alsike clover / Red clover (*Trifolium hybridum* / *Trifolium pratense*).
  - .8 Seed mixture: Canada No. 1 grade.
- .3 Inoculant: endomycorrhizal fungi powder, containing 3,200 spores/g of *Glomus intraradices*, applied at a rate of 0.75 kg/ha. Incorporate mycorrhizal inoculant in slurry and use with all seed mixes.
  - .1 Ensure inoculant containers feature label with expiration date.
- .4 Water:
  - .1 Potable, supplied by Contractor.
- .5 Fertilizer:
  - .1 No fertilizer recommended for ditch and material stockpiles since seed mixtures selected are adapted for site conditions and tolerate poor soils.
- .6 Mulch:
  - .1 Wood cellulose fibre.
  - .2 Application at manufacturer's recommended rate.
  - .3 Tackifier: water-soluble vegetable carbohydrate powder.

## **Part 3 Execution**

### **3.1 SITE PREPARATION**

- .1 Ensure surfaces to seed are prepared in accordance with Section 32 91 19.13 – Topsoil Placement and Grading. If discrepancies occur, notify Departmental Representative and commence work only when instructed by Departmental Representative.
- .2 Do not perform work under adverse field conditions such as frozen soil, excessively wet soil or soil covered with snow, ice, or standing water.

### **3.2 SEEDING**

- .1 Seed in accordance with Articles 19.3.6.2 and 19.3.6.4 of the CCDG.
- .2 Hydraulic seeding
  - .1 Use equipment and method approved by Departmental Representative.
- .3 Spread seed mixture uniformly on cultivated surfaces, in proportions mentioned above for each mixture.

### **3.3 CLEANING**

- .1 Once Work is complete, remove materials, waste materials, rubbish and tools.

### **3.4 PROTECTION AND MAINTENANCE OF SEEDED AREAS**

- .1 Protect and maintain seeded surfaces until acceptance of seeding work.
- .2 Perform following operations from time of seed application until acceptance of work by Departmental Representative:
  - .1 Water seeded areas to maintain optimum soil moisture level for germination and continued growth. Control watering to prevent washouts.
  - .2 Repair and reseed dead or bare spots to allow establishment of seed prior to acceptance.
  - .3 Destroy weeds when proportion exceeds 10% per square metre of seeded surface.

### **3.5 FINAL ACCEPTANCE**

- .1 Seeding work is accepted after protection and maintenance work is performed.
- .2 Work is accepted once growth reaches at least 150 mm in height over 75% of each square metre of seeded surface, and after second fertilizer application.

**END OF SECTION**



**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 32 91 19.13 – Topsoil Placement and Grading.

**1.2 SCOPE OF WORK**

- .1 Work includes soil preparation and cleaning, sodding and maintaining sodded areas.

**1.3 ADMINISTRATIVE PROCEDURES**

- .1 Work schedule
  - .1 Schedule sod laying to coincide with preparation of soil surface. Sodding seasonal limits:
    - .1 Start of thaw through June 15 (spring).
    - .2 August 15 through October 15 (fall).

**1.4 REFERENCE STANDARDS**

- .1 Ministère des Transports du Québec (MTQ).
  - .1 Collection Normes – Ouvrages routiers, Tome VII – Matériaux, latest edition.
  - .2 Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1 All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.
- .2 Comply with federal and provincial legislation pertaining to pesticide use (Environment Quality Act and Pesticides Act).

**1.5 SUBMITTALS**

- .1 Submit manufacturer's instructions, printed product literature and data sheets for grass and fertilizer. Include product characteristics, performance criteria, physical size, finish and limitations.

**1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Protect sod from heat, drying out and frost from time it is lifted until it is placed.
- .2 Place sod within forty-eight (48) hours of lifting, except in cool, rainy weather.

**1.7 WARRANTY**

- .1 Warranty seeded areas until acceptance of seeding work.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Number One Turf Grass Nursery Sod: sod that has been especially sown and cultivated in nursery fields as turf grass crop.

- .1 Turf Grass Nursery Sod types:
  - .1 Number One Kentucky Bluegrass Sod: Nursery Sod grown solely from seed of cultivars of Kentucky Bluegrass, containing not less than 50% Kentucky Bluegrass cultivars.
  - .2 Number One Kentucky Bluegrass Sod – Fescue Sod: Nursery Sod grown solely from seed mixture of cultivars of Kentucky Bluegrass and Chewing Fescue or Creeping Red Fescue, containing not less than 40% Kentucky Bluegrass cultivars and 30% Chewing Fescue or Creeping Red Fescue cultivars.
  - .3 Number One Named Cultivars: Nursery Sod grown from certified seed.
- .2 Turf Grass Nursery Sod quality:
  - .1 Not more than 1 broadleaf weed and up to 1% native grasses per 40 square metres.
  - .2 Density of sod sufficient so that no soil is visible from height of 1500 mm when mown to height of 50 mm.
  - .3 Mowing height limit: 35 to 65 mm.
  - .4 Soil portion of sod: 6 to 15 mm in thickness.
- .2 Sod establishment support:
  - .1 Geotextile fabric: biodegradable, 40 mm square mesh.
  - .2 Wooden pegs: 20 mm x 20 mm x 300 mm.
- .3 Water:
  - .1 Potable, supplied by Contractor.
- .4 Fertilizer:
  - .1 To Canada "Fertilizers Act" and Fertilizers Regulations.
  - .2 Complete, synthetic, slow release with 65% of nitrogen content in water-insoluble form.

## **2.2 SOURCE QUALITY CONTROL**

- .1 Obtain Departmental Representative's approval of sod at source.
- .2 When proposed source of sod is approved, use no other source without written authorization from Departmental Representative.

## **Part 3 Execution**

### **3.1 SITE PREPARATION**

- .1 Ensure surfaces to seed are prepared in accordance with Section 32 91 19.13 – Topsoil Placement and Grading. If discrepancies occur, notify Departmental Representative and commence work only when instructed by Departmental Representative.
- .2 Do not perform work under adverse field conditions such as frozen soil, excessively wet soil or soil covered with snow, ice, or standing water.

### **3.2 SOD PLACEMENT**

- .1 Lay sod within twenty-four (24) hours of being lifted, if air temperature exceeds 20 degrees C.
- .2 Lay sod sections in rows, staggering joints. Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections with sharp implements.
- .3 Roll sod with light roller (320 to 540 kg/m<sup>2</sup> or 0.5 to 0.8 lb/in<sup>2</sup>) to adhere grass roots to soil. If surface soil is dry, spray grass before rolling.
- .4 As soon as sod is in place, spray with fine mist to ensure wetting to 100 mm in soil.

### **3.3 SOD PLACEMENT ON SLOPES AND PEGGING**

- .1 Place geotextile fabric where slopes are steeper than 2H:1V, and secure in accordance with manufacturer's instructions.
  - .1 Spread mesh on fertilized topsoil before placing sod, taking care not to damage prepared surface. Overlap mesh strips by approximately 15 cm; secure with pegs driven into overlaps. Lay sod on reinforcement and secure with pegs.
- .2 Start laying sod at bottom of slopes.
- .3 Peg sod on steep slopes, i.e. slopes steeper than 3H:1V. Arrange pegs as follows:
  - .1 100 mm below top edge at 200 mm on-centre for first sod sections along contours of slopes.
  - .2 Not less than five (5) pegs per square metre.
  - .3 Not less than six to nine (6-9) pegs per square metre in surfaces adjacent to drainage structures. Adjust pattern as directed by Departmental Representative.
  - .4 Drive pegs to 20 mm above soil surface of sod sections.

### **3.4 CLEANING**

- .1 Once Work is complete, remove materials, waste materials, rubbish and tools.

### **3.5 PROTECTION AND MAINTENANCE OF SEEDED AREAS**

- .1 Protect and maintain seeded surfaces until acceptance of seeding work.
- .2 Perform following operations from time of sodding until acceptance by Departmental Representative.
  - .1 Water sodded areas to maintain optimum soil moisture level for germination and continued growth. Control watering to prevent washouts.
  - .2 Repair and re-sod dead or bare spots to allow establishment of sod prior to acceptance. Replace dead sections.
  - .3 Destroy weeds when proportion exceeds 10% per square metre of seeded surface.
  - .4 Mow at least twice.

**3.6 FINAL ACCEPTANCE**

- .1 Seeding work is accepted after protection and maintenance work is performed.
- .2 Work is accepted when:
  - .1 Sodded areas have been mown at least twice.
  - .2 After last mowing to 60 mm, surfaces are 95% free of dead patches or bare ground, and quantity of weeds is acceptable.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 31 00 00.01 – Earthwork – Short Form
- .2 Section 32 11 16.01 – Granular Sub-Base

**1.2 REFERENCE STANDARDS**

- .1 Bureau de normalisation du Québec (BNQ)
  - .1 BNQ 1809-300: Construction – General Technical Clauses – Water and Sewer Pipes.
  - .2 BNQ 2560-114: Civil Engineering Work – Aggregates.
  - .3 BNQ 2622-126: Reinforced Concrete and Unreinforced Concrete Pipes and Monolithic Lateral Connections for Evacuation of Domestic Wastewater and Storm Water.
  - .4 BNQ 3624-120: Smooth Inside Wall Open-Profile Polyethylene (PE) Pipe and Polyethylene Fittings for Storm Sewers, Culverts and Soil Drainage.
- .2 Ministère des Transports du Québec (Department of Transportation)
  - .1 Cahier de charge et devis généraux – Infrastructures routières – Construction et réparations, 2021 edition (CCDG).
    - .1 All payment procedures outlined in the CCDG are replaced with payment procedures stipulated in Section 01 29 00 – Payment Procedures.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product data sheets
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for piping and backfill. Include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Samples
  - .1 At least one (1) week prior to starting Work, inform Departmental Representative of proposed source of bedding materials and provide access for sampling.
- .4 Certification: to be marked on pipe.
- .5 Test and evaluation reports: at least two (2) weeks prior to starting Work, submit manufacturer's test data and certification attesting that pipes meet requirements.

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with requirements of BNQ and 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 accordance with manufacturer's recommendations and BNQ requirements.
  - .2 Store and protect materials from damage.
  - .3 Replace defective or damaged materials and equipment with new.

## **Part 2 Products**

### **2.1 CONCRETE PIPE**

- .1 Reinforced concrete circular pipe: to BNQ 2622-126.
- .2 Reinforced concrete circular pipe: Class III.

### **2.2 SMOOTH INSIDE WALL, OPEN-PROFILE HIGH DENSITY POLYETHYLENE (HDPE) PIPE**

- .1 Round HDPE pipe: to BNQ 3624-120.

### **2.3 BEDDING AND SURROUND MATERIALS**

- .1 MG-20 or CG-14 granular material: to BNQ 2560-114.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Temporary Erosion and Sedimentation Control:
  - .1 Use 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, in accordance with Departmental Representative's recommendations.
  - .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 EXCAVATION**

- .1 Excavate according to Section 31 00 00.01 – Earthwork – Short Form.
- .2 Obtain Departmental Representative's approval for trench alignment and depth prior to placing bedding material and pipe.

### **3.3 BEDDING PREPARATION**

- .1 In addition to specifications of BNQ 1809-300:
  - .1 Dewater excavation, as necessary, to allow placement of culvert bedding in dry condition.
  - .2 Place 150 mm minimum thickness of approved granular material on bottom of excavation and compact to at least 95% of maximum density to ASTM D698.
  - .3 Shape bedding to fit lower segment of pipe exterior so that width of at least 50% of pipe diameter is in close contact with bedding and to camber as indicated or as directed by Departmental Representative, free from sags or high points.
  - .4 Place bedding in unfrozen condition.

### **3.4 LAYING CONCRETE PIPE CULVERTS**

- .1 Begin at downstream end of culvert with flanged end of first pipe section facing upstream.
- .2 Ensure barrel of each pipe is in contact with shaped bed throughout its length.
- .3 Allow water to flow through pipes during construction only as permitted by Departmental Representative.
- .4 Connect concrete pipes with factory-installed rubber gaskets.

### **3.5 LAYING HIGH DENSITY POLYETHYLENE PIPE**

- .1 Begin laying at downstream end.
- .2 Install pipe in trench by lowering.
- .3 Ensure bottom of pipe is in contact with shaped bedding throughout pipe length.

### **3.6 COVER**

- .1 In addition to specifications of BNQ 1809-300:
  - .1 Use materials that are not frozen.
  - .2 Place CG-14 or MG-20 except when cover is within roadway structure; in that case, use MG-20.

### **3.7 CLEANING**

- .1 Progress cleaning: Clean in accordance with Section 01 74 00 – Cleaning.

**END OF SECTION**

