

# **TENDER DOCUMENTS**

## **SUBSECTION 6.94**

### **SNOW REMOVAL, SPREADING AND SUPPLY OF DE-ICING SALTS AND ABRASIVES**

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### **APPENDIX 6.94-I SPREADING CHART**

## SUBSECTION 6.94 SNOW REMOVAL, SPREADING AND SUPPLY OF DE-ICING SALTS AND ABRASIVES

### 6.94.1 GENERAL

6.94.1.1 This subsection outlines the requirements relating to the snow removal and spreading work and to the supply of de-icing salts and abrasives covered by this Contract.

### 6.94.2 REFERENCE STANDARDS

6.94.2.1 The **Contractor** shall carry out all snow removal and spreading work and supply the de-icing salts and abrasives in accordance with the requirements of the following standards and documents, to which the provisions of the Contract are added:

6.94.2.1.1 (ASTM) American society for testing and materials:

- ❑ E534 – *Standard Test Methods for Chemical Analysis of Sodium Chloride*;
- ❑ D632 - *Standard Specification for Sodium Chloride*.

6.94.2.1.2 (MTQ) Ministère des Transports du Québec:

- ❑ MTQ – *Cahier des charges et devis généraux (CCDG)* ;
- ❑ MTQ – *Normes Ouvrages Routiers – Tome VI Entretien*, Norme 6410-1 *Niveaux de service*;
- ❑ MTQ – *Normes Ouvrages Routiers – Tome VI Entretien*, Norme 6410-3 *Déneigement des routes sans réserve de capacité*;
- ❑ MTQ – *Normes Ouvrages Routiers – Tome VI Entretien*, Norme 6410-4 *Déglçage avec fondants et abrasifs des routes avec réserve de capacité*;
- ❑ MTQ – *Normes Ouvrages Routiers – Tome VI Entretien*, Norme 6410-5 *Déglçage avec fondants et abrasifs des routes sans réserve de capacité*;
- ❑ MTQ – *Normes Ouvrages Routiers – Tome VI Entretien*, Norme 6410-6 *Déglçage mécanique*;
- ❑ MTQ – *Normes Ouvrages Routiers – Tome VII Matériaux*, Norme 12101 *Chlorure de calcium*;
- ❑ MTQ – *Normes Ouvrages Routiers – Tome VII Matériaux*, Norme 12102 *Chlorure de calcium*.

### 6.94.3 MATERIALS

6.94.3.1 The **Contractor** shall supply all spreading materials for the performance of the work of this Contract.

6.94.3.2 The materials shall be used exclusively for the purposes of this Contract.

### 6.94.3.3 DE-ICING SALT

6.94.3.3.1 The **Contractor** is required to supply directly from a de-icing salt supplier. The equipment shall comply with BNQ standard 2410-200.

### 6.94.3.4 ABRASIVES

#### 6.94.3.4.1 Crushed stone

6.94.3.4.1.1 The crushed stone used shall comply with the AB-5 grading requirements.

#### 6.94.3.4.2 Calcium chloride

6.94.3.4.2.1 Calcium chloride flakes 77% shall be added to the de-icing salt and/or crushed stone.

6.94.3.5 The **Contractor** shall send to the **Owner** a copy of the weighing or delivery coupons of the materials received. These coupons shall be forwarded to the **Owner** by the **Contractor** within forty-eight (48) hours of receipt of the materials.

6.94.3.6 In order to be able to carry out proper spreading, the **Contractor** shall ensure that it has in reserve, at the beginning of each season, and shall ensure to maintain, 300 metric tons of de-icing salt, 150 metric tons of crushed stone and a sufficient quantity of calcium chloride to ensure, at all times, a safe roadway for users.

### 6.94.3.7 TECHNICAL DATA SHEETS

6.94.3.7.1 The **Contractor** is responsible for supplying abrasives whose intrinsic and complementary properties relating to the aggregate meet the ministère des Transports du Québec's AB-5 or AB-10 requirements.

### 6.94.3.8 STATEMENT OF CONFORMITY

6.94.3.8.1 The **Contractor** is responsible for providing the Engineer, fourteen (14) days prior to the beginning of each winter season, with a statement of conformity of the abrasives that will be used for the work covered by this subsection.

6.94.3.8.2 The statement of conformity shall contain the following information:

- The name of the supplier;
- Date and place of manufacture;
- Results of the sieve testing;
- Results of the water content tests.

6.94.3.9 WINDBREAK FENCE

6.94.3.9.1 The **Contractor** shall supply and install windbreak (snow) fences in order to prevent, as much as possible, drifts from accumulating in traffic lanes. These windbreak fences shall be removed at the end of each winter season.

**6.94.4 INSPECTION AND STORAGE**

6.94.4.1 STORAGE SITE

6.94.4.1.1 The **Contractor** shall have a materials storage site located within a maximum radius of five (5) kilometers of the boundaries of the Territory covered by this Contract. The **Contractor** may use part of the snow storage facility or of the land adjacent to the Garage described below as storage site, ensuring, however, that the requirements of paragraph 4.94.4.3.3 are met at all times.

6.94.4.1.2 The **Contractor's** storage site shall comply with the existing standards and regulations, shall be watertight and equipped with a canvas and walls to protect it against adverse weather conditions and precipitation. In addition, the site shall rest on an impervious surface (asphalt, concrete or other equivalent material) to prevent the infiltration of the brine in the ground.

6.94.4.1.3 The Engineer may visit the **Contractor's** materials storage site without notice.

6.94.4.2 GARAGE

6.94.4.2.1 The **Owner** will provide the **Contractor** with an unheated garage, hereinafter called "Garage", whose location is described in the *Special Technical Conditions*.

6.94.4.2.2 At the beginning of each season, the **Contractor** shall provide, at all times throughout the season, and maintain in the Garage, , all the equipment necessary to carry out the snow removal and spreading work required in these specifications, which equipment shall be kept functional at all times.

6.94.4.2.3 The Garage shall be maintained in good condition by the **Contractor**. At the end of each winter season of the Contract, the **Contractor** shall return the Garage to the **Owner** in the same condition as it was when it was left to the **Contractor** took it at the beginning of the season.

6.94.4.2.4 The Engineer may, at any time, visit the **Contractor's** Garage to ensure that the requirements of the Contract, including the requirements of Article 6.94.4.2.2, are met.

6.94.4.3 SNOW STORAGE FACILITY

6.94.4.3.1 The location of the snow storage facility made available to the **Contractor** is described in Section 4 *Special Technical Requirements*.

## 6.94.5 EQUIPMENT AND TOOLS

- 6.94.5.1 The **Contractor** shall use all the vehicles and equipment that will be necessary to carry out the work covered by this Contract and to complete it in the timeframe prescribed herein.
- 6.94.5.2 The **Contractor** shall use the proper equipment, in sufficient capacity and numbers to enable it to carry out the work in accordance with the requirements of these specifications. This equipment shall be in good working order and safe for both the workers and the public, in accordance with the existing applicable laws, regulations and decrees.
- 6.94.5.3 For all equipment used to carry out the work covered by this Contract, the **Contractor** shall provide the Engineer with a statement of mechanical conformity issued in the last sixty (60) days.
- 6.94.5.4 The **Contractor** shall own vehicles and equipment meeting the following minimum characteristics and provide with its tender the registration certificates thereof:
- 6.94.5.4.1 One (1) snow blower, having a capacity of at least 2,180 metric tons per hour;
- 6.94.5.4.2 Four (4) 10-wheel 9 m<sup>3</sup> spreader trucks, with reversible snowplough giving a trace of at least 3.65 meters and a 3.65 meter side wing, 1995 or newer model and in good condition;
- 6.94.5.4.3 One (1) 10-wheel 9 m<sup>3</sup> spreader truck, with reversible snowplough giving a trace of at least 3.65 meters, fitted with a quick coupler, 1995 or newer model and in good condition. This equipment will be used for snow removal and spreading of de-icing salt and abrasives on the dedicated lane;
- 6.94.5.4.4 One (1) self-leveler equipped with a 4.30 meter blade, 1990 or newer model and in good condition;
- 6.94.5.4.5 One (1) wheel loader having a capacity of at least 2.2 cubic meters, fitted with a quick coupler for 3.65 meter reversible plow, 1990 or newer model and in good condition.
- 6.94.5.5 If, at the time of filing its tender, the **Contractor** does not own the required vehicles and equipment, the **Contractor** may append to the tender form a conditional promise to purchase duly signed by the supplier from whom it intends to acquire the required vehicles and equipment.
- 6.94.5.6 The **Contractor** shall, at no cost to the **Owner**, have the equipment required to follow the movement of the vehicles according to the GPS technology (satellite positioning) installed on the vehicles used for the purposes of this Contract. The **Contractor** hereby consents to the **Owner** checking the movement of its vehicles on the road network.

- 6.94.5.7 The spreader trucks shall be equipped with electronic controllers to effectively control a variety of spreading rates ranging between 0 and 500 kilograms per kilometer for abrasives and between 0 to 350 kilograms per kilometer for sodium chloride. The electronic controller shall be the Chlorobite type or an equivalent approved by the **Owner**.
- 6.94.5.7.1 The **Contractor** shall provide the **Owner** with a calibration certificate of its electronic controllers, for all its equipment used to carry out the work covered by this Contract. The calibration shall be performed at the beginning of each season.
- 6.94.5.7.2 The **Contractor** shall further provide the **Owner** with a data converter to recover the electronic controller data for the purposes of payment of the spreading materials.

## 6.94.6 EXECUTION OF WORK

### 6.94.6.1 GENERAL

- 6.94.6.1.1 The **Contractor** is responsible for carrying out all the work and assumes, with regard thereto, an obligation of result. The **Contractor** shall lead and monitor the work effectively. The **Contractor** is sole responsible for the means, methods, techniques, sequences, procedures and coordination of the work. No official notice will be given to the **Contractor** to start the snow removal and spreading operations.
- 6.94.6.1.2 The **Contractor** shall always organize its work program taking into account the peak periods described in the *Table(s) of lanes to be maintained opened* attached in Section 4 *Special Technical Conditions* so as to minimize traffic hindrance.
- 6.94.6.1.3 The **Contractor** shall comply with the written instructions issued by the Engineer.
- 6.94.6.1.4 The **Contractor** shall use the number of vehicles required to carry out the snow removal, spreading and all related work. In addition, the **Contractor** shall distribute these vehicles efficiently and in compliance with this Contract so as to ensure a smooth and uninterrupted flow of traffic.

### 6.94.6.2 SPREADING WORK

- 6.94.6.2.1 The spreading work covered by this Contract consists in supplying and spreading de-icing salt, crushed stone and calcium chloride on all roadways described in the *Special Technical Conditions*.
- 6.94.6.2.2 The **Contractor** shall, from the beginning of the precipitation and during and after it, as well as during episodes of blowing snow and until the end of operations, spread abrasives or de-icing salts on the roadway so as to maintain, at all times, a smooth and safe flow of vehicles.
- 6.94.6.2.3 The spreading consists in, without however being limited to, the following:

- 6.94.6.2.3.1 Spread de-icing salt on the roadway when the weather conditions including, without limitation, snowfalls, freezing rain, ice or blowing snow, make the roadway slippery, or as requested by the representatives of the Sûreté du Québec or by the Engineer.
- 6.94.6.2.3.1.1 When necessary, the **Contractor** may have to add calcium chloride to the de-icing salt or a mixture of crushed stone and calcium chloride for the spreading, taking into account the weather conditions.
- 6.94.6.2.3.1.1.1 The document entitled “Spreading Chart” in Appendix 6.94-I is provided for information purposes. The **Contractor** remains solely responsible for the type of materials to be spread depending on the weather conditions and the **Owner** disclaims any liability towards the **Contractor** in respect to said appendix.
- 6.94.6.2.4 The storm drainage system sumps throughout the Territory covered by this Contract shall be thawed by means of calcium chloride.
- 6.94.6.2.5 The **Contractor** shall load the different spreading materials in its spreader trucks itself.
- 6.94.6.3 SNOW REMOVAL WORK
- 6.94.6.3.1 The **Contractor** shall diligently patrol the entire Territory. During such patrols, the **Contractor** shall plan its interventions and check the general condition of the Territory, particularly in regard to road conditions, the quality of the de-icing or the need for spreading of materials and for snow removal or the prevailing conditions at the critical locations.
- 6.94.6.3.2 The **Contractor** shall clear the snow after an accumulation of two and a half centimeters (2.5 cm) from one (1) or more snowfalls.
- 6.94.6.3.3 The **Contractor** shall ensure that the snow removal is carried out on a continuous basis and over the full lane width. The **Contractor** shall carry out the snow removal in tandem or tridem so that no windrows that could jeopardize the safety of users are left on the roadway.
- 6.94.6.3.4 The **Contractor** shall, from the beginning of the precipitation, and during and after the precipitation or blowing snow and until the end of operations, clear the snow from the roadway in order to maintain, at all times, a smooth and safe flow of vehicles, pushing the snow from left to right and packing it as much as possible along the roadway, while avoiding throwing snow on the electric control boxes and on the signs and fences.
- 6.94.6.3.5 The **Contractor** shall, at all times, clear the snow from the drain grids so that they are free from any accumulation of snow or ice.
- 6.94.6.3.6 All the snow accumulated along the roadway and that could form what is commonly called “launch pad” shall be completely cleared of snow and treated as a priority.

- 6.94.6.3.7 The **Contractor** shall clear the snow from the roadway when the snow is pushed by gusting wind conditions and drifts accumulate on the roadway, even if the accumulation is less than the two and a half centimeters (2.5 cm) referred to in paragraph 6.94.6.3.2, or even if there is no precipitation. The **Contractor** shall maintain the roadway clear of snow to ensure the smooth and safe flow of vehicles.
- 6.94.6.3.8 The snow removal and spreading shall be fully completed no later than four (4) hours after the end of the snowfall.
- 6.94.6.4 LOADING AND TRANSPORTATION
- 6.94.6.4.1 The loading consists in mechanically removing all snow accumulated along the roadway and on the roadway, and in carrying that snow to the snow storage facility described in the *Special Technical Conditions*.
- 6.94.6.4.2 The **Contractor** shall proceed to the loading for accumulations from one or more snowfalls totaling more than five (5) centimeters.
- 6.94.6.4.3 The **Contractor** shall not blow the snow onto and through the bridge superstructures.
- 6.94.6.6.4.1. The **Contractor** shall obtain the permission of the **Owner** to blow the snow on vacant land belonging to the **Owner**. Where obtained, this authorization will not relieve the **Contractor** from its responsibility for any damage arising from such operations.
- 6.94.6.4.5 START OF LOADING
- 6.94.6.4.5.1 The **Contractor** shall start the loading immediately after the end of the snowfall subject, however, to the *Table(s) of lanes to be maintained opened* attached in Section 4 *Special Technical Conditions* of these specifications.
- 6.94.6.4.6 END OF LOADING
- 6.94.6.4.6.1 The loading shall be fully completed within the time described below:
- 6.94.6.4.6.1.1 For a precipitation of less than twenty (20 cm) centimeters, within forty-eight (48) hours after the end of the snowfall;
- 6.94.6.4.6.1.2 For a precipitation of more than twenty (20 cm) centimeters, within sixty (60) hours after the end of the snowfall;
- 6.94.6.4.6.2 The roadway shall be free of snow or ice when the loading is completed.
- 6.94.6.4.6.3 The time of the end of the snowfall will be determined by the **Owner** from the daily weather report sent by Environment Canada. The delays in carrying out the loading work are recognized from the time determined using this report.

## **6.94.7 QUALITY CONTROL**

### **6.94.7.1 FALLING MATERIALS**

- 6.94.7.1.1 The **Contractor** shall take the necessary measures to prevent snow and ice from falling from viaducts or elevated sections of the bridge and approaches thereto, including entrance and exit ramps.

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**END OF SUBSECTION**