

TENDER DOCUMENTS

SUBSECTION 6.89 LANDSCAPING

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SUBSECTION 6.89 LANDSCAPING

6.89.1 GENERAL

6.89.1.1 This subsection describes the requirements relating to the landscaping work covered by this Contract.

6.89.1.2 Any specific requirements, if need be, pertaining to the landscaping work covered by this Contract are indicated on the drawings and in Section 4 *Special Technical Conditions*.

6.89.2 MEASUREMENT UNITS

6.89.2.1 The measurement units and respective symbols thereof used in this subsection are described as follows:

Measurement Unit	Designation	Symbol
area	square meter	m ²
area	hectare	ha
length	millimeter	mm
mass	kilogram	kg
volume	cubic meter	m ³
volume	liter	L

6.89.3 REFERENCE STANDARDS

6.89.3.1 The **Contractor** shall carry out all landscaping work in accordance with the requirement of the following standards and documents, to which the provisions of this Contract are added:

6.89.3.1.1 (BNQ) Bureau de normalisation du Québec:

- BNQ 0413–200 *Amendements organiques – Composts*;
- BNQ 0419–070 *Amendements minéraux – Pierre à chaux naturelle*;
- BNQ 0605–300 *Produits de pépinières et de gazon*;
- BNQ 0605–400 *Produits de serres*.

6.89.3.1.2 (MTQ) Ministère des Transports du Québec:

- MTQ – *Cahier des charges et devis généraux (CCDG)*;
- MTQ – *Ouvrages routiers – Tome VII Matériaux*;
 - Norme 9101 - *Matériaux pour l'aménagement paysager*.

6.89.4 MATERIALS

6.89.4.1 GENERAL

6.89.4.1.1 The materials for landscaping shall comply with MTQ standard 9101.

6.89.4.2 LAWN MIX

6.89.4.2.1 The lawn mix used for hydroseeding shall consist of:

6.89.4.2.1.1 50% creeping red fescue (*Festuca rubra* L.);

6.89.4.2.1.2 30% Kentucky bluegrass (*Poa pratensis* L.);

6.89.4.2.1.3 10% common bent (*Agrostis capillaris* L.);

6.89.4.2.1.4 10% rye grass (*Lolium perenne* L.).

6.89.5 EQUIPMENT AND TOOLS

6.89.5.1 SODDING BY HYDROSEEDING

6.89.5.1.1 The hydroseeding shall be performed using a truck equipped with a hydraulic seeder that projects an aqueous mixture.

6.89.6 INSPECTION AND STORAGE

6.89.6.1 ACCEPTANCE OF SODDING WORK BY THE ENGINEER

6.89.6.1.1 The acceptance of the sodding work by the Engineer, if need be, is done after the protection and maintenance work has been performed.

6.89.6.1.2 In the case of sodding work where mowing is not required, the acceptance by the Engineer is performed when the shoot has reached a minimum of 150 mm in height over 75% of each m² of the turfed surfaces and after the second application of fertilizer.

6.89.7 EXECUTION OF WORK

6.89.7.1 GENERAL

6.89.7.1.1 Sodding period

6.89.7.1.1.1 The work periods for sodding by seeding or by turf laying lie between the end of thaw and June 15 (spring period), and between August 15th and October 15th (fall period).

6.89.7.1.1.2 Seeding or sodding when the temperature is below the freezing mark or on frozen ground is prohibited.

- 6.89.7.1.2 Documents required prior to delivery
- 6.89.7.1.2.1 The **Contractor** shall provide the Engineer, for review, at least fourteen (14) days before the start of sodding, with a document containing the information specified below for the lawn and turf mixes:
- 6.89.7.1.2.1.1 the name and address of supplier;
- 6.89.7.1.2.1.2 the composition of the seed mix;
- 6.89.7.1.2.1.3 the germination percentage;
- 6.89.7.1.2.1.4 the degree of purity of the mix.
- 6.89.7.2 PREPARATION OF THE SURFACE TO SOD
- 6.89.7.2.1 The **Contractor** shall, after final leveling, prepare the surfaces to sod and maintain them in good condition. If, due to weather conditions or traffic, ridges, depressions, crevices or grooves are created, the **Contractor** shall restore the surfaces. Depressions or crevices that are too large shall be corrected with excavated materials or borrow used in the performance of earthworks.
- 6.89.7.2.2 Where indicated on the drawings, the surface soil shall be loosened and harrowed to a minimum depth of 100 mm.
- 6.89.7.3 TOPSOIL PLACEMENT
- 6.89.7.3.1 Topsoil shall not be placed until authorization has been received from the Engineer.
- 6.89.7.3.2 Topsoil shall not be spread on frozen or soggy ground.
- 6.89.7.3.3 The soil bulk density after spreading shall not exceed 1,800 kg/m³.
- 6.89.7.3.4 Topsoil shall come from the site by recovery and stockpile, or supplied by the **Contractor** in accordance with the standard 9101 of MTQ.
- 6.89.7.3.5 Topsoil shall not be spread more than seven (7) days before sodding.
- 6.89.7.3.6 Spreading of topsoil shall be evenly carried out in a layer of 100 mm in thickness after compaction.
- 6.89.7.3.7 Topsoil placed shall be compacted, but not densified. Topsoil that has been stockpiled shall be crumbled prior to spreading.
- 6.89.7.3.8 The **Contractor** shall, before sodding, remove all stones with a diameter of 50 mm and larger, remove woody debris and waste, and level the soil. Where indicated on the drawings, the **Contractor** shall loosen the surface topsoil.

6.89.7.4 SODDING BY SEEDING

6.89.7.4.1 The **Contractor** shall submit to the Engineer, fourteen (14) days prior to undertaking the sodding work, the calculation of the quantities of materials to be used for sodding, in units of mass or volume, as appropriate. In the case where straw is used, the mass shall be calculated from moisture lower than 15%.

6.89.7.4.2 Hydroseeding

6.89.7.4.2.1 This type of seeding, carried out using a hydraulic seeder, shall include the following:

6.89.7.4.2.1.1 uniformly applying a fertilizer, whose basic formula respects the 1-3-1 proportion, providing a minimum of 25 kg/ha of nitrogen (N), 75 kg/ha phosphorus (P₂O₅) and 25 kg/ha of potassium (K₂O). However, the recommendations from the laboratory that carried out the soil analysis take precedence over the above requirements;

6.89.7.4.2.1.2 uniform spreading of the lawn mix, at the rate of 120 kg/ha;

6.89.7.4.2.1.3 adding water;

6.89.7.4.2.1.4 uniformly protecting the seeding by means of a seeding mulch at the rate of 1,400 kg/ha of wood fiber or straw fiber. In the case of straw fiber mulch, the **Contractor** shall add 1,700 L/ha of horticultural peat;

6.89.7.4.2.1.5 impregnating the mulch with a fixing agent, at the rate recommended by the manufacturer.

6.89.7.4.2.2 Seeds shall not sit in water more than two (2) hours prior to seeding.

6.89.7.4.2.3 The **Contractor** shall perform two (2) fertilization operations: the initial one at the time of seeding and the second at the time of the maintenance described in Article 6.89.7.6 *Protection and Maintenance of Turfed Surfaces*.

6.89.7.5 SODDING WITH ROLL-OUT TURF

6.89.7.5.1 The roll-out turf shall be delivered within twenty-four (24) hours from the time they are harvested. They shall be placed within forty-eight (48) hours of harvest.

6.89.7.5.2 In dry weather, before laying the roll-out turf, the **Contractor** shall protect it in order to maintain its vitality, by maintaining sufficient moisture to prevent the earth from coming loose during handling.

6.89.7.5.3 Self-Retained Roll-Out Turf

6.89.7.5.3.1 The sodding by means of roll-out turf shall include the following:

6.89.7.5.3.1.1 compaction of the topsoil with a hand roller that weighs approximately 15 kg;

- 6.89.7.5.3.1.2 uniformly applying a fertilizer prior to laying the roll-out turf, whose basic formula respects the 1-3-1 proportion, providing a minimum of 25 kg/ha of nitrogen (N), 75 kg/ha phosphorus (P₂O₅) and 25 kg/ha of potassium (K₂O). However, the recommendations from the laboratory that carried out the soil analysis take precedence over the above requirements;
- 6.89.7.5.3.1.3 unrolling of the roll-out turf on the surface to cover;
- 6.89.7.5.3.1.4 compaction of the roll-out turf with a hand roller, immediately after laying, so that they adhere to the ground without leaving voids;
- 6.89.7.5.3.1.5 watering, in sufficient quantity for the water to penetrate and soak the roll-out turf to the ground, immediately after laying thereof;
- 6.89.7.5.3.1.6 the roll-out turf shall be laid in rows across the slope, with staggered joints and be perfectly juxtaposed;
- 6.89.7.5.3.1.7 the **Contractor** shall perform two (2) fertilization operations: the initial one at the time of roll-out turf laying and the second at the time of the maintenance described in Article 6.89.7.6 *Protection and Maintenance of Turfed Surfaces*.
- 6.89.7.5.4 Roll-out turf held in place by stakes
 - 6.89.7.5.4.1 The sodding by means of roll-out turf held in place by stakes shall include the following:
 - 6.89.7.5.4.1.1 uniformly applying a fertilizer prior to laying the roll-out turf, whose basic formula respects the 1-3-1 proportion, providing a minimum of 25 kg/ha of phosphorus (P₂O₅), 25 kg/ha of nitrogen (N) and 75 kg/ha of potassium (K₂O). However, the recommendations from the laboratory that carried out the soil analysis take precedence over the above requirements;
 - 6.89.7.5.4.1.2 unrolling of the roll-out turf on the surface to cover;
 - 6.89.7.5.4.1.3 anchoring of the roll-out turf to the ground with five (5) stakes per m² of turfed surface;
 - 6.89.7.5.4.1.4 watering, in sufficient quantity for the water to penetrate and soak the roll-out turf to the ground, immediately after laying thereof;
 - 6.89.7.5.4.1.5 the roll-out turf shall be laid in rows across the slope, with staggered joints and be perfectly juxtaposed;
 - 6.89.7.5.4.1.6 the stakes shall be installed vertically;
 - 6.89.7.5.4.1.7 the **Contractor** shall perform two (2) fertilization operations: the initial one at the time of roll-out turf laying and the second at the time of the maintenance described in Article 6.89.7.6 *Protection and Maintenance of Turfed Surfaces*.

6.89.7.6 PROTECTION AND MAINTENANCE OF TURFED SURFACES

6.89.7.6.1 The **Contractor** shall protect and maintain the sodded surfaces until the acceptance of the sodding work by the Engineer. The **Contractor** shall notify the Engineer forty-eight (48) hours before performing the maintenance work.

6.89.7.6.2 The protection and maintenance work shall include the following:

6.89.7.6.2.1 watering of the sodded surfaces;

6.89.7.6.2.2 protection from vehicular and pedestrian traffic by means of information posters or barriers;

6.89.7.6.2.3 fertilization, which shall be performed based on the soil analysis results;

6.89.7.6.2.4 restoration of the areas damaged by the wind, rain, work or any other cause;

6.89.7.6.2.5 resumption of sodding of every m² of surface covered by less than 75% of 150 mm high shoots after a growth of seven (7) weeks or more within the growth period extending from May 10 to September 21;

6.89.7.6.2.6 destruction of the weeds when the proportion thereof exceeds 10% per square meter of sodded surface.

6.89.7.6.3 The watering shall be performed using a suitable distributor that shall not damage the sodded surfaces. Watering shall be uniform and sufficiently abundant to provide a suitable growth medium.

6.89.7.6.4 The application of fertilizer shall be carried out between March 21 and September 15, namely during the growing season. For areas where mowing is indicated on the drawings, the application shall be carried out after the first mowing, whereas for areas where mowing is not required, it must be carried out after the grass has reached a maximum of 150 mm in height over 75% of the sodded surfaces.

6.89.8 QUALITY CONTROL

6.89.8.1 GENERAL

6.89.8.1.1 Except for topsoil, the **Contractor** shall provide a certificate of conformity for each material at least fourteen (14) days prior to the start of sodding.

6.89.8.2 TOPSOIL

6.89.8.2.1 The **Contractor** shall provide a certificate of conformity within fourteen (14) days of the placement in stockpile after milling work or at least fourteen (14) days before delivery, as applicable.

- 6.89.8.2.2 The certificate of conformity shall contain, without being limited to, the following information and documents:
- 6.89.8.2.2.1 the name and address of the supplier as well as the storage site when the topsoil comes from outside of the worksite;
 - 6.89.8.2.2.2 the laboratory report, signed by a chemist, specifying the percentage of organic matter, pH and the chemical analysis (assimilable phosphorus and potassium in ppm). The laboratory shall be an agricultural testing laboratory approved by the Engineer. The sampling and testing shall be carried out according to the standard 9101 of MTQ. The Engineer reserves the right to attend the sampling performed by the **Contractor**, on worksite or outside the worksite;
 - 6.89.8.2.2.3 a report signed by an agronomist indicating the soil additive amendment and fertilization recommendations for the sodding work.

END OF SUBSECTION