

DIVISION II  
CONSTRUCTION AND MATERIAL SPECIFICATIONS SEWERS  
SECTION 2400 SEEDING AND SODDING

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KANSAS CITY METROPOLITAN CHAPTER  
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DIVISION II  
CONSTRUCTION AND MATERIAL SPECIFICATIONS  
SECTION 2400 SEEDING AND SODDING

**SECTION 2401 SEEDING**

**2101.1 Scope**

This section governs the furnishing of all labor, equipment, tools, materials, and the performance of all work for seeding.

**2101.2 Materials, Definitions and Equipment:**

- A. **Seeds:** Seeds for cover crops shall comply with the requirements of the applicable state seed laws and shall be the mixture of seeds specified in the Special Provisions. Seeds shall be free of prohibited weed seeds and shall not have more than 1 percent of noxious weed seeds. Seeds shall be delivered to the site in convenient containers, each fully labeled, bearing the name, trade name, or trade mark, and a warranty of the producer and a certificate of the percentage of the purity and germination of each kind of seed specified.
- B. **Pure Live Seed:** The following formula shall be used to determine the amount of commercial seed required to provide each kind of seed for the specified quantities of pure live seeds:

$$\text{Pounds of Commercial Seed Required} = \frac{10,000 \times \text{Pure Live Seed (lbs per acre)}}{\text{Purity (Percent)} \times \text{Germination (percent)}}$$

- C. **Fertilizer:** Fertilizer shall be inorganic 12-12-12 or 13-13-13 grade, uniform in composition free flowing and suitable for application with approved equipment, delivered to the site in convenient containers, each fully labeled, conforming to the applicable state fertilizer laws, bearing the name, trade mark, or trade name, and a warranty of the producer.
- D. **Mulch:** Mulch shall be either the vegetative type, wood cellulose fiber type, asphaltic emulsion type, or asphalt emulsion over mulch, whichever is specified in the Special Provisions, or as approved by the Engineer.
  - 1. **Vegetative Type:** The vegetative type shall be the cereal straw from stalks of oaks, rye, wheat or barley and shall be free of prohibited and noxious weed seeds.
  - 2. **Asphalt Emulsion Type:** The asphalt shall be SS-1h conforming to the requirements of ASTM D-977, or cut-back grade MC-2 conforming to ASTM D-598, whichever is specified in the Special Provisions.
  - 3. **Asphalt Emulsion over Mulch:** The asphalt shall conform to the requirements of Section 2401.2D2 above and applied over vegetative mulch conforming to the requirements of Section 2401.2 D1 above.
  - 4. **Wood Cellulose Fiber Mulch:** Wood cellulose fiber shall contain no germination or growth inhibiting ingredients, and shall be dyed an appropriate color to aid in visual metering in its application. It shall be easily and evenly dispersed and suspended when agitated in water, and when sprayed uniformly on the soil surface, shall form a blotter-like cover, which readily absorbs the water and allows infiltration to the underlying soil. The mulch material shall be supplied in packages of not more than 100 pounds (45.36 kg) gross weight, and shall be marked by the manufacturer to show the air dry weight content. (Air dry weight shall contain not more than 10 per cent moisture).

- E. **Equipment:** The seeding operation shall be accomplished with equipment suitable for preparing the seed bed, sowing the seed, fertilizing, spreading the vegetative type mulch, spreading the emulsion type mulch, or spreading the wood cellulose fiber mulch in accordance with the applicable requirements of the following sub-section entitled "Construction Details:"

**2101.3 Construction Details**

All equipment used in the project and all workmanship shall meet the approval of the Engineer.

- A. **Application of Fertilizer:** Before tilling the soil the fertilizer shall be distributed uniformly at the rate of 600 pounds per acre (672.5 kg per hectare), and incorporated into the soil to a depth of at least 2 inches (5.08 cm) by discing or harrowing methods. Fertilizing rate is equivalent to 7 pounds per 500 square feet (6.72 kg per square hectometre).
- B. **Tilling the Seed Bed:** Areas shown on the plans or specified to be seeded shall be cleared and graded as required preparatory to tilling the surface for seeding. The surface shall be tilled to a depth of at least 2 inches (5.08 cm) by discing or other approved methods until the soil is suitable for seeding. Areas tilled shall be maintained until seeding and mulching is complete to insure a smooth area with no gullies or depressions.
- C. **Planting Seeds:** The kinds of seeds and the rate of sowing pure live seed shall be as specified on the Plans or in the Special Provisions, but shall be one of the following mixtures:
  - 1. **Type "A" Seed:** This seeding mixture will normally be used where seeding is required in areas of established yards, shoulders and slopes in street right of way, and any other areas where a high-type seeding is deemed necessary. The seed mixture will be as follows:

**Type "A" Seed**

Kind of Seed	Minim Pure Live Seed (%)	Rate of Pure Live Seed (lbs / acre)
Alta Fescue or Kentucky 31 Fescue (Festuca Elatior) Var. Arundinaces	75	25
Rye Grass (Lolium Perenne or L. Multi-florum)	80	25
Kentucky Blue Grass (Pac. Pratensis)	75	20
Creeping Red Fescue (Festuca Rubra)	85	10
<b>TOTAL</b>		<b>80</b>

2. **Type "B" Seed:** This seeding mixture will normally be used to seed areas off street rights-of-way that are not maintained.

**Type "B" Seed**

Kind of Seed	Minim Pure Live Seed (%)	Rate of Pure Live Seed (lbs / acre)
Alta Fescue or Kentucky 31 Fescue (Festuca Elatior) Var. Arundinices	75	90
Rye Grass (Lolium Perenne or L. Multi-florum)	80	50
<b>TOTAL</b>		<b>140</b>

All seeding work shall be done between the dates of February 1 and April 15 for spring planting or August 15 and October 15 for fall planting. Sowing shall be accomplished by use of an approved mechanical seeder or drill (hand spreader can be used in small areas), making sure that successive seed strips overlap to provide uniform coverage. Seed should be drilled to a depth of 1/2 inch (1.27 cm).

- D. **Compaction:** Immediately following the completion of seeding operations, the entire area shall be compacted by means of a roller weighing at least 60 but not more than 90 pounds per linear foot (89.29 to 133.93 kg per metre) of roller.
- E. **Mulching:** Mulching shall be done within 24 hours following the seeding operation except in the case of wood cellulose fiber type mulch.

1. **Vegetative Type Mulch:** After compacting the surface, mulch shall be uniformly spread at the rate of 1 1/2 tons per acre (3.36 metric ton per hectare) by means of a mechanical spreader or other approved means.

As soon as the mulch is spread it shall be anchored to the soil a minimum depth of 3 inches (7.62 cm) by use of a heavy disc harrow, set nearly straight, or a similar approved tool. Discs of the anchoring tool shall be set approximately 9 inches (22.86 cm) apart.

Anchoring shall be accomplished by not more than two passes of the tool.

2. **Asphalt Emulsion Type:** After compacting the surface, mulch shall be uniformly spread at the rate of 0.2 gallons per square yard (0.906 litres per square metre) by means of an approved sprayer. The temperature of the mulch at time of application shall be in the range of 125° to 175° F (51.6° to 79.4° C).
3. **Asphalt over Mulch:** After compacting the surface, vegetative type mulch shall be applied as specified in Section 2401.3 C1 above. This shall then be covered with asphalt emulsion as specified in Section 2401.1 C2 above.
4. **Wood Cellulose Fiber Type:** Wood cellulose fiber mulch shall be added to the hydraulic seeder after the proportionate amounts of seed, fertilizer and water, and other approved materials are added. These ingredients shall be mixed to form a slurry which shall be applied at the rate of 1,000 pounds per acre (1.12 metric tons per hectare). The mulch shall make a uniform coverage of the soil surface that will be satisfactory to the Engineer.

## 2101.4 Protection and Repair

The seeded area shall be kept free of traffic until accepted. If at any time before acceptance of the completed contract, any portion of the seeded surface becomes gullied or otherwise damaged, or the seeding has been damaged or destroyed, the affected portion shall be repaired to re-establish the specified condition prior to the acceptance of the work.

## SECTION 2402 SODDING

### 2102.1 Scope

This Section governs the furnishing of all labor, equipment, tools and materials, and the performance of all work for sodding.

### 2102.2 Materials and Definitions:

- A. **Sod:** The sod shall be densely rooted nursery grown Kentucky Blue Grass. The sod shall contain a growth of not more than 10 percent of other grasses and clovers, shall be free from all prohibited and noxious weeds, and shall be cut in strips of uniform thickness, the range of acceptable thickness shall be  $\frac{3}{4}$  to  $1\frac{1}{4}$  inch (1.91 to 3.18 cm); each strip containing at least one (1) square yard. Sod shall be cut in strips not less than 12 inches wide (30.5 cm).
- B. **Fertilizer:** Fertilizer shall be inorganic 12-12-12 or 13-13-13 grade, uniform in composition, free flowing and suitable for application with approved equipment, delivered to the site in convenient containers, each fully labeled, conforming to applicable state fertilizer laws, bearing the name, trade name, or trademark and warranty of the producer.

### 2102.3 Construction Details

- A. **Fertilizing:** Before tilling operations, fertilizer shall be spread uniformly at the rate of 300 pounds per acre (336.25 kg per hectare). Fertilizing rate is equivalent to 3.5 pounds per 500 square feet (3.36 kg per square hectometre).
- B. **Tilling the Sod Bed:** The sod bed shall have a uniform surface free from washes and depressions; and shall conform to the finished grade profile and cross-section shown on the plans. The soil, except where fresh top soil has just been applied and compacted, shall be thoroughly tilled to a depth of 2 inches (5.0 cm).

Freshly graded areas, which have set long enough to become dry and crusted over shall be tilled as specified above, preparatory to placing the sod.

- C. **Placing Sod:** Sod shall not be placed during a drought nor during the period from June 1 to September 1, unless authorized by the Engineer, and shall not be placed on frozen ground.

Sod shall be moist when it is placed. Sod strips shall be laid along contour lines, commencing at the lowest point of the area and working upward. The transverse joints of sod strips shall be staggered and the sod carefully placed to produce tight joints. The sod shall be firmed and watered immediately after it is placed. The "firming" shall be accomplished by application of a roller weighing not less than 60 nor more than 90 pounds per lineal foot (89.29 to 133.9 kg per metre) of roller.

1. **Anchoring Sod:** On 2:1 slopes, or steeper, the sod shall be anchored with  $\frac{1}{2}$  inch (1.27 cm) square by 8 inch (20.32 cm) long wooden pegs driven into the ground 3 pegs to the square yard (square metre) or other approved methods. Pegging shall be done immediately after sod is firmed. The area shall then be cleared of loose sod, excess or broken anchors, excessive soil, or other foreign materials.
2. **Maintenance:** The sodded area shall be thoroughly watered daily for a period of fifteen days after placing except when thoroughly wetted by rain. Any portion of the sod that is not in good growing condition following the first full growing season (Spring to Fall) shall be replaced with fresh live sod.

## SECTION 2403 MEASUREMENTS AND PAYMENTS

### 2103.1 Scope

This section governs the method of measurement and basis of payment for furnishing all labor, equipment, tools and materials and for the performance of all related work necessary to complete any construction covered in Section 2400.

### 2103.2 General

Unless specifically altered by the Contract Special Provisions, the methods of measurement and payment shall be as specified herein and as listed in the Proposal.

### 2103.3 Items not listed in the Proposal

There shall be no measurement or separate payment for any item of work not specifically identified and listed in the Proposal and all costs pertaining thereto shall be included in the contract unit prices for other items in the Proposal.

### 2103.4 Methods of Measurement

The quantities of accepted work shall be measured or determined as follows:

#### A. Seeding:

1. **Street Construction:** Seeding will be measured per acre (hectare) or hundredth part thereof.
2. **Sanitary Sewer Construction:** Seeding will be measured horizontally in linear feet (decimetre) along the centerline of sewer, regardless of the width of disturbed areas or type of seed used. Seeding will be measured only when centerline of sewer lies in grassed areas to be seeded as shown on the plans. When centerline of sewer lies in areas that are not grassed, such as street paving, driveways, parking areas, gardens, etc., no measurement will be made. Areas that are disturbed which lie outside the Contractor's normal trenching operation areas will not be measured for payment, but shall be restored to a condition equal to or better than that existing prior to construction. Each area measured will be measured either as seeding or sodding, but not as both. When sewer ends in grassed area, measurement will be made only to centerline of manhole.

#### B. Sodding:

1. **Street Construction:** Sodding will be measured per square yard (square metre) or tenth part thereof.
2. **Sanitary Sewer Construction:** Sodding will be measured horizontally in linear feet (decimetre) along the centerline of sewer. Regardless of width of disturbed areas or type sod used. Sodding will be measured only when centerline of sewer lies in grassed areas to be seeded as shown on the plans. When centerline of sewer lies in areas that are not grassed, such as street paving, driveways, parking areas, gardens, etc., no measurement will be made. Areas that are disturbed which lie outside the Contractor's normal trenching operation areas will not be measured for payment, but shall be restored to a condition equal to or better than that existing prior to construction. Each area measured will be measured as either seeding or sodding, but not as both. When sewer ends in grassed area, measurement will be made only to centerline of manhole.

### 2103.5 Basis of Payment

Payment for the accepted work will be made as follows:

#### A. Seeding:

1. **Street Construction:** Payment for seeding will be made by one of the following:
  - a. Contract unit bid price.

- b. Contract lump sum bid price.
  - 2. **Sanitary Sewer Construction:** Payment will be made at the contract unit bid price.
- B. Sodding:**
- 1. **Street Construction:** Payment for sodding will be made by one of the following:
    - a. Contract unit bid price price.
    - b. Contract lump sum price.
  - 2. **Sanitary Sewer Construction:** Payment will be made at the unit bid price.