

SECTION 7200 - SEEDING AND SODDING

7201 SCOPE. This section covers the furnishings of all labor, equipment, tools and materials, and the performance of all work for seeding or sodding as designated on the contract drawings.

7202 GENERAL. The seeding work shall consist of furnishing and drilling in or sowing seed by an experienced seeding contractor having approved equipment manufactured expressly for the purpose, such as a seed drill with fertilizer attachment, mulch chopper and blower for the application of hay or straw mulch, mulch puncher or straight serrated disc for punching mulch into soil and a cultipacker that may be used for final compaction.

For public improvement projects seeding shall be required at all locations shown on the plans and for all grass covered areas that are disturbed by construction operations, either by grading, parking of equipment, temporary roads, or any other operation that has destroyed the existing grasses of the original site, and that is not designated on the drawings to be replaced with sod.

For all other types of construction, including that work done under a work within right-of-way permit, sod shall be required where areas are disturbed by construction within the right-of-way in established yards or as directed by the city engineer. In established yards, the new sod shall match the existing sod.

Sod work shall be performed by an experienced sod-laying contractor.

7203 MATERIAL. The sod shall be densely-rooted Kentucky Bluegrass. The sod shall contain a growth of not more than 10 percent (10%) of **other** grasses and clovers, shall be free from all prohibited and noxious weeds, and shall be three-fourths (3/4") to one and one-fourth inch (1-1/4"); each strip containing at least one (1) square yard. Sod shall be cut in strips not less than twelve inches (12") wide.

Commercial fertilizer for seeded or sodded areas shall contain 12 percent (12% by weight) nitrogen, 12 percent (12% by weight) phosphoric acid, and 12 percent (12% by weight) potash. It shall be uniform in composition, free flowing, and delivered to the site in standard size bags, showing weight, analysis, and name of manufacturer. It shall be stored until use in a weatherproof storage place in such a manner that it will be kept dry and its effectiveness will not be impaired.

Seeds for cover crops shall be the kind and mixture of seeds specified herein. Seeds shall be free of prohibited weed seeds and shall not have more than 1 percent (1%) of noxious weed seeds. Seeds shall be delivered to the site in convenient containers, each fully labeled, bearing the 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. The tags shall be made available to the engineer for filing.

The following formula shall be used to determine the amount of commercial seed required to provide for each kind of seed the specified quantities of pure live seeds.

$$\text{Pounds of Commercial Seed Required} = \frac{10,000 \times \text{Rate of Pure Live Seeds (lbs/acre)}}{\text{Purity \%} \times \text{Germination \%}}$$

Where seeding is required in areas of established yards, shoulders and slopes in street right-of-way, and any other areas where a high-quality seeding is deemed necessary, the seed mixture will be as follows:

	MINIMUM PURE	RATE OF PURE LIVE SEED
KIND OF SEED	LIVE SEED (%)	POUNDS/ACRE
Perennial Rye (Derby or equivalent)	80%	65
Turf-type Tall Fescue (Rebel II or equivalent)	80%	175
Annual Rye	85%	10
		Total 250 lbs/Acre

Where seeding is required in vegetation-covered medians, the seed mixture will be as follows:

	MINIMUM PURE	RATE OF PURE LIVE SEED
KIND OF SEED	LIVE SEED (%)	POUNDS/ACRE
Buffalograss	85%	90
Annual Rye	85%	110
		Total 200 lbs/Acre

Where seeding is required in areas off street right-of-way that are not maintained periodically, the seed mixture will be as follows:

	MINIMUM PURE	RATE OF PURE LIVE SEED
KIND OF SEED	LIVE SEED (%)	POUNDS/ACRE
Alta Fescue or Kentucky 31 Fescue (Festuca Elatior) Var. Arundinaces)	75%	90 lbs.
Rye Grass (Lolium Perenne or L. Multiflorum)	80	50
		Total 140 lbs./Acre

Mulch for application to seedbed areas shall include wheat straw, oat straw, smooth bromegrass hay, Sudan grass hay or prairie hay. Prairie hay shall consist chiefly of bluestem grasses, switchgrass, Indian grass and other desirable native perennial grasses. Mulch shall be free of prohibited and noxious weed seeds.

7204 TIME OF SEEDING OR SODDING. Seeding and fertilizing shall be performed between August 15 and October 15 for fall planting and between February 15 and April 30 for spring planting, unless otherwise acceptable to the engineer. Seeding and fertilizing shall not be done during periods of such severe drought, high winds, or excessive moisture, as determined by the engineer, that satisfactory results are not likely to be obtained.

Sod shall not be placed between June 15 and September 15 or on frozen ground nor during the period from October 15 to March 15, unless authorized by the engineer.

Any seeding or sodding to be performed during periods other than those previously designated will require a written request to extend the permissible period for performing such work. Said request shall explain the reason for the variance and shall include a guarantee (by the general contractor) of satisfactory results by the end of the first four (4) weeks of the following growing season as previously defined, or the necessary re-seeding or re-sodding work performed at that time. The request shall be initiated by the general contractor and directed to the city engineer for consideration for approval.

7205 APPLICATION OF FERTILIZER. Before tilling of the soil for seeded areas, the commercial fertilizer of the type specified shall be uniformly distributed over the entire site at the rate of six hundred (600) pounds per acre, and incorporated into the soil to a depth of at least two inches (2") by discing or harrowing methods or with a fertilizer drill. The fertilizer may be applied with the seeding operation only if a seed drill with a fertilizer attachment is used. (The above fertilizer rate is equivalent to seven [7] pounds to five hundred [500] square feet).

7206 PREPARATION OF SOD BED. The sod bed shall have a uniform surface free from washes and depressions and shall conform to the finished grade profile or 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 two inches (2"). 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. **The contractor must have the prepared sod-bed inspected and approved by the city prior to any sod being placed. Any sod placed prior to the sod-bed being inspected and approved by the city is subject to being removed, the deficiencies corrected, and the sod replaced at the contractors expense.**

Sod placed next to existing grassy areas, curbs, sidewalks or like boundaries shall be cut-in to match like grades.

7207 PLACEMENT OF SOD. Sod shall be transplanted within twenty-four (24) hours from the time it is harvested. All sod in stacks shall be kept moist and protected from exposure to the sun and from freezing.

The fertilized sod beds shall be in a firm but not too compacted condition with relatively fine texture at the time of sodding. Sod shall be moist when it is placed. The use of dry sod will not be permitted. Sod strips shall be laid along contour lines by hand, 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 reduce tight joints. The sod shall be firmed, watered, and re-firmed immediately after it is placed. The "firming" shall be accomplished by application of a roller

weighing not less than sixty (60) nor more than ninety (90) pounds per linear foot of roller. On steep slopes, the sod may be firmed by compacting with hand shovels. The firming process shall pack the sod roots firmly into the prepared soil.

The contractor shall water installed sod within twenty-four hours and shall water all sod twice daily for a minimum of twenty-one (21) days from initial laying, except on those days where a minimum of 1/4 inch (1/4") of rain falls in a twenty-four hour period.

- 7208 PREPARATION OF THE SEEDBED. The area to be seeded shall be thoroughly tilled to a depth of at least three inches (3") by discing, harrowing or other approved methods until the soil is well pulverized. After completion of the tilling operation, the surface shall be cleared of all stones, stumps, or other objects larger than 1-1/2 inches (1-1/2") in thickness or diameter, and of roots, wire, grade stakes, and other objects that might be a hindrance to maintenance operations. Areas tilled shall then be brought to the desired line and grade and maintained until seeding and mulching is complete to ensure a smooth area with no gullies or depressions.

Any objectionable undulations or irregularities in the surface resulting from tillage or other operations shall be removed before planting operations are begun. Seedbed preparation shall be performed only during periods when satisfactory results are likely to be obtained. When results are not satisfactory because of drought, excessive moisture or other causes, the work shall be stopped until such conditions have been corrected to the satisfaction of the engineer.

- 7209 PLACEMENT OF SEED. Seeding may be accomplished by means of approved mechanical power-drawn drills followed by packer wheels, or by broadcast-type seeders or hydraulic type seeders in small areas not accessible to machine methods, or as approved by the city engineer. Mechanical power-drawn drills shall have depth bands set to maintain a planting depth of at least one-quarter inch (1/4") but not to exceed one-half inch (1/2"). All seed sown by broadcast-type seeders shall be "raked in" or otherwise covered with soil to a depth of at least one-quarter inch and rolled to obtain a firm seed bed. Water shall be applied when necessary.

Hydraulic seeding equipment shall include a pump capable of being operated at 100 gallons per minute and at 100 pounds per square inch pressure, unless otherwise directed. The equipment shall have an acceptable gauge and a nozzle adaptable to hydraulic seeding requirements. Storage tanks shall have a means of agitation and a means of estimation of the volume used, or remaining in the tank.

Seed shall not be drilled or sown during windy weather or when the ground is frozen or otherwise untillable. When a seed drill is used, it shall be set to space the rows not more than 4 inches (4") apart.

- 7210 MULCHING. Straw or hay mulch shall be applied uniformly to seeded areas at the rate of not less than two (2) tons per acre. Baled straw or hay shall be broken up and loosened sufficiently before being fed into the blower hopper to avoid the placing of matted or unbroken clumps. The use of wet straw or hay is prohibited.

Mulching shall be performed within twenty-four (24) hours after seeding, but not be done during windy or rainy weather or when such weather is imminent. Mulching shall be started at

the windward side of relatively flat areas, or at the upper part of steep slopes and shall continue uniformly until each area is covered.

The mulching material shall be disced or punched into the soil so that it is partially covered. Several passes may be required, if a straight disc is used, in order to mix the mulching material with the topsoil sufficiently to ensure protection from erosion by either wind or water. The mulch tilling operation shall be performed parallel to the ground contours.

- 7211 MAINTENANCE. All seeded areas shall be protected against damage by vehicle and pedestrian traffic by the use of barriers and appropriate warning signs. If at any time before completion and acceptance of the seeding work any portion of the seeded area becomes gullied or otherwise damaged, such damaged areas shall be repaired by filling with soil to original grade, re-seeding and re-mulching. All costs of repair work shall be borne by the contractor.

Contractor shall be responsible for watering areas seeded for a period of five (5) weeks after the time of seeding, except when thoroughly wetted by rain. Sprinkling of the seeded areas shall be carefully done in such manner as to avoid standing water, surface wash, or scour.

All sodded areas shall be thoroughly watered twice daily for a period of twenty days (20) after placing, except when thoroughly wetted by rain of 1/4-inch (1/4") or more in a 24-hour period.

- 7212 GUARANTEE. The contractor will be required to guarantee all sod installed on this project for twenty-one (21) days from the date of installation. After the twenty-one day period, the city will inspect all sod. Any sod that is dead at the end of the twenty-one day period shall be replaced by the contractor at his expense and is subject to an additional twenty-one day warranty period. All healthy sod at the end of the twenty-one day period will be accepted by the city and turned over to the property owner for maintenance. If the sod is accepted by the city, the contractor shall notify the property owners in writing that the city has accepted the sod and the property owner is now responsible for all sod maintenance and watering. The contractor is not required to guarantee any healthy sod accepted by the city after the twenty-one day period.