

**SECTION 33**  
**SEEDING AND SODDING**

**12/08/15**



**STANDARD CONSTRUCTION SPECIFICATIONS**

## **Chapter 33 - SEEDING AND SODDING**

- 33.00 SCOPE
- 33.10 GENERAL
- 33.20 MATERIALS
  - A. GENERAL PLANT MATERIALS REQUIREMENT -
  - B. SEED (GENERAL) -
  - C. APPROVED VARIETIES INCLUDE:
    - TYPE "A"
    - TYPE "B"
    - TYPE "C"
    - TYPE "D"
    - TYPE "E"
    - TYPE "F"
    - TYPE "G"
    - TYPE "H"
    - TYPE "I"
  - D. SOD (GENERAL) -
  - E. FERTILIZER
  - F. TOPSOIL
  - G. COMPOST
  - H. MULCH
  - I. LIMESTONE
  - J. WATER
- 33.30 CONSTRUCTION METHODS
  - A. EXAMINATION
  - B. UNDERGROUND FACILITIES
  - C. PREPARATION OF SOIL
  - E. FERTILIZING
  - F. SITE CLEAN-UP
- 33.31 COVER CROP (Temporary Seeding)
  - A. EARLY SEASON (SPRING COVER CROP)
  - B. MID-SEASON (LATE SUMMER/FALL COVER CROP)
  - C. LATE SEASON (WINTER COVER CROP)
- 33.32 SEEDING
  - A. GENERAL
  - B. TOPSOIL
  - C. SEED
  - D. MULCHING
  - E. SEEDING METHOD -
    - 1. FESCUE/BUEGRASS SEEDING
    - 2. NATIVE SEEDING
  - F. WATERING
- 33.33 SODDING
  - A. GENERAL
  - B. TOPSOIL.
  - C. CARE AND HANDLING
  - D. INSTALLATION.
  - G. MAINTENANCE
  - J. WATERING
- 33.40 CONSTRUCTION APPURTENANCES
- 33.41 PLANTING SEASON

- 33.42 ACCEPTANCE AND ESTABLISHMENT PERIOD
  - A. INSPECTION
  - B. ESTABLISHMENT
  - C. FINAL INSPECTION
- 33.43 REPLACEMENT OF MATERIAL AND GUARANTEE PERIOD
- 30.70 QUALITY ASSURANCE
  - A. SOD
  - B. SEED
  - C. INSPECTION
- 33.71 SOURCE QUALITY CONTROL
  - A. CERTIFICATES OF INSPECTION
  - B. SUBSTITUTIONS
  - C. CERTIFIED ANALYSIS
- 33.80 SUBMITTALS
- 33.90 MEASUREMENT AND PAYMENT
  - A. MEASUREMENT AND PAYMENT
  - B. GENERAL
  - C. SODDING
  - D. SEEDING

**33.00 SCOPE** – The contractor shall furnish all labor, materials, equipment, and perform all work and services for furnishing and installation of all seeding and sodding as shown on the drawings and as specified, the Special Provisions, and these specifications and completely coordinate with work of all other trades.

**33.10 GENERAL** – Although such work is not specifically indicated, furnish and install all supplementary of miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and completed installation.

### **33.20 MATERIALS**

#### **A. GENERAL PLANT MATERIALS REQUIREMENT -**

1. All material shall comply with all applicable State and Federal laws, including inspection certifications which shall include the project number and the plant material that the certification covers.
2. All material furnished shall be true to name and type and legible labels shall be furnished to insure that all species, varieties, boxes, bundles, bales or other containers are identified. The information on the label shall cover the botanical genus, species, and common name or variety.
3. All material shall be sound, healthy specimens and first-class representatives of their species or variety, and shall have well formed tops and healthy root systems.
4. Materials which are planted and later discovered to be not true to name may be allowed to remain in place, as approved by the Engineer without payment being made therefore.
5. A representative sample of all material shall be submitted to the City Engineer or his authorized representative for approval prior to planting if requested.
6. Any material that is planted which does not meet the specified minimum size shall be rejected or allowed to remain in place without payment being made therefore.
7. If a Contractor is unable to locate sufficient material in specified sizes, negotiation for unit price reduction shall be concluded prior to installation.
8. All material shall be true to species and variety specified and grown/produced in accordance with good horticultural practices.
9. Substitution of specified materials shall not be permitted unless authorized by the City Engineer or his authorized representative.

#### **B. SEED (GENERAL) -**

1. All seeds shall comply with the applicable State and Federal seed laws.
2. Seed used shall be free of crop, weed and inert matter.
3. The Contractor shall obtain from the seed dealer and furnish to the City Engineer or authorized representative an analysis of each type and lot of seed the Contractor proposed to use.
4. The analysis shall provide complete information on the seed as required by the State and Federal laws, as well as the specific crop and noxious weed seed present.
5. The Engineer may approve use of the seed if the information on the analysis is satisfactory. A minimum of eighty-five percent (85%) pure live seed (purity x germination x 100) is required for approval. Grass seed mixtures shall comply with the formulas provided in the seeding tables.

Listed below are Specifications for each type of grass seed mixture. Included in each Specifications are the grasses which are approved for use in that mixture. Other cultivars may be approved by the Engineers or City's Representative.

**C. APPROVED VARIETIES INCLUDE:**

**TYPE "A"** Lawn Mix (High maintenance turf, sunny locations)

For use in sunny locations receiving higher maintenance, water on a regular basis and requiring adequate appearance and rapid establishment.

*Kentucky Bluegrass Blend*

Description: Dark green color, good shade tolerance, disease resistant  
Location: Sites with irrigation, Office Parks, Residential  
Seeding Period: April 15 - May 30; September 1 - October 15  
Composition: 60% Bluechip, Blue Moon and NuBlue Ky. Bluegrass, 40% Accent or Caddieshack and SR4220 Perennial Ryegrass  
General Application: Seed 2 to 3 lbs. /M Sq. Ft.  
Overseed Application: Overseed 1 to 1 ½ lbs. /M Sq. Ft.

**TYPE "B"** Fescue Mix (Medium maintenance turf, sunny locations)

For use in sunny locations receiving medium maintenance and requiring adequate appearance and rapid establishment.

*Turf Type Tall Fescue, Kentucky Bluegrass and Perennial Ryegrass Mix*

Description: Lower growing dwarf fescue, high wear tolerance, lo  
Location: Parks and lower maintenance areas with or without irrigation. Mowing required.  
Seeding Period: April 15 - May 30; September 1 - October 15  
Composition: 88% Arid 3, Jaguar 3, Masterpiece and Rembrandt (E), Turf Type Tall Fescue 7%, Blue Chip and NuBlue Kentucky Bluegrass - 5% Turf Type Perennial Ryegrass.  
General Application: Seed 5 to 6 lbs. /M Sq. Ft.  
Overseed Application: Overseed 2 to 3 lbs. /M Sq. Ft.

**TYPE "C"** Buffalograss (Low maintenance turf in sunny locations)

For use in sunny locations receiving little or no supplement water beyond establishment and requiring minimal mowing.

*Buffalograss cultivars including: Legacy, Cody, Bowie, Bison, Texoka, Tatanka*

Description: Low growing, 4" - 8" little or no mowing  
Location: Medians, Boulevards, Open Space areas  
Seeding Period: April 15 - May 30; September 1 - October 15  
Composition: Varies between species  
General Application: Apply 2 to 3 pounds of seed per 1000 sq. ft.  
Overseed Application: Apply 1 to 2 pounds of seed per 1000 sq. ft.

**TYPE "D"** Shade Mix (For use in shady locations)

For use in areas receiving little or no sun.

Description: Versatile mix of fescues, fairly low maintenance  
Location: Residential, older areas of town (i.e. Capitol Environs District)  
Seeding Period: April 15 - May 30; September 1 - October 15  
Composition: MX 86 Sheeps Fine Fescue, Rescue 911 hard Fine Fescue, SR3200 Blue Fine Fescue, Jamestown Chewings Fine Fescue and Rose creeping Red Fine Fescue or equivalent(s).  
General Application: Apply 4 to 6 Lbs. /M Sq. Ft.  
Overseed Application: Overseed 2 to 4 Lbs. /M Sq. Ft.

**TYPE "E"** Low Growing Grass Mix (Outlying City and Acreages)

For use in areas requiring low maintenance, low growing, natural native prairie look.

Description: Mixture of cool and warm season grasses  
Location: Outlying areas of town, acreages:  
Seeding Period: April 15 - May 30; September 1 - October 15  
Composition: Blue Fine Fescue, hard Fine Fescue, Sheeps Fine Fescue, Blue Grama, Little Bluestem and Sideoats Grama  
General Application: Seed 16 to 32 Lbs. /Ac (½ to 1 Lb. /1,350 Sq. Ft.).  
Overseed Application: N/A

**TYPE "F"** Rural Mix (County Road Projects)

For use in sunny rural locations and along roadsides for quick growth and erosion control.

Description: Strong sod forming abilities of brome grass with deep rooting fescue  
Location: County Roads, Rural NRD Projects  
Seeding Period: April 15 - May 30; September 1 - October 15  
Composition: See Below

General Application:	Smooth Bromegrass, VNS	10 lbs pls/acre
	Oats, Jerry	20 lbs pls/acre
	Hairy Vetch	2.25 lbs pls/acre
	Clover, Mammoth Red, VNS	2.25 lbs pls/acre
	Switchgrass, NE 28	2.25 lbs pls/acre
	18-46-0 Fertilizer	200 lbs/acre
	Zinc Sulfate Monohydrate	20 lbs/acre

Overseed Application: N/A

**TYPE "G"** Native Prairie Mix

For use in sunny locations, low maintenance and taller grasses are acceptable.

Description: Mixture of (5) native warm season grasses  
Location: Native Prairie, Natural Areas  
Seeding Period: May 1 - May 30; September 1 - October 15

Composition: 2.0 PLS Lbs. Big Bluestem, 1.5 PLS Lbs. Each of Little Bluestem and Indiangrass, 1.0 PLS each of Canada and Virginia Wild Rya and 0.6 PLS Lbs. Each of Switchgrass and Sideoats Grama.

General Application: Apply 20 pounds per acre.

Overseed Application: N/A

**TYPE "H"** Flood Plain Mix (For use in drainage channels and on channel side slopes)

For use in sunny locations with tolerance to standing water from 14 to 60 days.

Description: Mixture of deep rooted grasses for wetlands

Location: This mixture may be used along shorelines, dams and lowland Pastures.

Seeding Period: April 15 - May 30; September 1 - October 15

Composition: Big Bluestem, Canada Wildrye, Red Top, Reed Canarygrass, Virginia Wildrye, Switchgrass and Western Wheatgrass

General Application: Seed 15 - 20 Lbs./Acre

Overseed Application: N/A

**TYPE "I"** Waterway Mix

For use in areas required to conform to the county ASCS specifications for waterways.

Description: Mixture blended for waterways

Location: Waterways

Seeding Period: April 15 - May 30; September 1 - October 15

Composition: 57% Smooth Bromegrass, 11.50% Orchardgrass, 11.50% Tall Fescue and 20% Switchgrass.

General Application: Apply 24 Lbs./Acre

Overseed Application: N/A

**D. SOD (GENERAL) -**

1. Sod type shall be as indicated on the plans.
2. Sod shall be taken from sources approved by the City Engineer or his authorized representative.
3. The sod shall be a first class representation of normal cultivars of bluegrass, fescue, buffalo grass or zoysia.
4. The Contractor shall furnish to the City Engineer or his authorized representative, upon request, a list of the cultivars used to produce the sod.
5. Sod shall be uniform in color and quality and shall be free of weeds, diseases or other visible imperfections at the time of acceptance.
6. The sod shall be mowed and raked to remove stems, sticks and grass clippings prior to cutting.
7. The sod shall be cut to a depth of approximately 3/4 inch. Extreme care shall be taken in cutting, handling, transporting and laying the sod to avoid unnecessary damage to and loss of earth from roots of the sod.
8. Sod shall not have dry or dead edges.

APPROVED VARIETIES INCLUDE:

Rhizomatous Tall Fescue  
Turf Type Tall Fescue  
Bluegrass/Fescue Blend  
Buffalo Grass (Legacy, Cody, Bowie, Bison, Texoka, Tatanka)  
Zoysia Grass

**E. FERTILIZER** – Provide commercial fertilizer of 5-10-5 analysis. All fertilizer shall be checked and approved by the City Engineer or his authorized representative for acceptance prior to use. Fertilizer shall be a commercial turf product containing nitrogen, available phosphoric acid and soluble potash as required, in a recognized plant food form. All fertilizer shall comply with the provisions of the State of Nebraska Fertilizer Act of 1955, with subsequent revisions.

This act requires:

1. Each brand and grade of commercial fertilizers must be registered by the Nebraska Department of Agriculture and Inspection.
2. Each container of commercial fertilizer shall have either placed on or affixed to the container in written or printed form, the net weight and the following information:
  - a. The name and address of the person guaranteeing the fertilizer.
  - b. The guaranteed analysis showing the minimum percent of plant food claimed in the following form:

Total nitrogen (N) \_\_\_\_%  
% Cold Water Insoluble Nitrogen (CWIN) (if applicable) \_\_\_\_%  
Available Phosphoric Acid (P<sub>2</sub>O<sub>5</sub>) \_\_\_\_%  
Soluble Potash (K<sub>2</sub>O) \_\_\_\_%

If distributed in bulk, a written or printed statement of the weight and preceding information shall accompany delivery and be supplied to the City Engineer or authorized representative. Any grade or mixture of grades of phosphoric acid and potash fertilizer may be used providing the proportions of the minimum rate of application per acre are in accordance with these Specifications or as directed by the City's Engineer or authorized representative. Components of bulk blends must be close in particle size to prevent segregation. The City Engineer or authorized representative may approve immediate use of any commercial turf or fertilizer which is registered for sale in Nebraska.

**F. TOPSOIL** - Shall be fertile, friable, natural loam, dark in color (often black), free of subsoil, clay lumps, brush, weeds, roots, stumps, stones larger than 1-1/2" in any dimensions, debris and other extraneous or toxic matter and harmful to plant growth. Topsoil shall be placed in a depth of no less than 4 inches. If adequate topsoils are not available on the project, topsoil shall be imported from other source at no expense to the owner. Topsoil shall be obtained from local sources and exhibit an acidity range (pH) of 6.0 to 8.5. Identify location of source.

**G. COMPOST** – When specified on the plans, shall be humus-like material made from the decomposition of organic materials which may have included leaves, branches, yard prunings and grass clippings such as LINGRO compost. The compost

materials shall be decomposed to form a highly stabilized product and screened with ½ inch or less screen opening. The compost shall be free of all inorganic debris. Compost is available from the City of Kearney's Solid Waste Agency Landfill - contact the landfill at (308) 233-3607. Ratio of topsoil to compost should be a minimum of 2 to 1.

**H. MULCH** - Mulching shall be applied in such a manner as to remain in place. Mulch alternatives shall include the following:

1. Hydro-mulch: If hydro-mulch is used, it shall be evenly applied to all seeded areas at the minimum rate of two thousand (2,000) pounds per acre with a three percent (3%) tackifier and shall be applied immediately after seed application.
2. Prairie Hay: If hay shall be used, it shall be applied evenly over the seeded surface at the minimum rate of two (2) tons per acre. Material shall be crimped into the ground by use of a weighted disk or other approved methods.
4. Wheat Straw: If wheat straw shall be used, it shall be applied at the rate of three (3) tons per acre. Material shall be crimped into the ground by use of a weighted disk or other approved methods.
5. All materials used as mulch will be free from all noxious weed, seed-bearing stalks, or roots and shall be inspected and approved the City Engineer or authorized representative.

An alternative may be approved by the City Engineer or his authorized representative. Hay shall be obtained from local source.

**I. LIMESTONE** – Agricultural grade ground limestone containing not less than 85 percent of the combined calcium and magnesium carbonates, 60 percent passing a 60 mesh sieve and 95 percent passing a 10 mesh sieve.

**J. WATER** - Water shall be potable, free from substances harmful to growth of grass. The Contractor shall provide water, equipment, methods of transportation, water tanker, hoses, sprinklers, and labor necessary for the application of water.

### **33.30 CONSTRUCTION METHODS**

**A. EXAMINATION** - Examine finish surfaces, grades, topsoil quality and depth. Do not start seeding or sodding work until satisfactory conditions are corrected.

**B. UNDERGROUND FACILITIES** – The Contractor will be responsible for having all underground utilities properly located prior to digging/planting. Any utility relocations that are necessary will also be the responsibility of the contractor including any costs associated with them and not the City of Kearney.

#### **C. PREPARATION OF SOIL**

1. Existing weed stubble and small weeds shall be cut and partially incorporated into the soil during seed bed preparation work. All other vegetation that will interfere with the seeding or sodding operations shall be removed by the Contractor. Extreme care shall be exercised to avoid injury to trees and shrubs.
2. Limit preparation to areas which will be immediately seeded or sodded. The areas shall be prepared not more than three days prior to the installation of materials. Loosen topsoil of areas to a minimum depth of 2 inches. Remove stones over 1 inch in any dimension and sticks, roots, rubbish and extraneous matter.

3. The seed bed shall be prepared not more than three (3) days prior to the installation of seed or sod by loosening the soil to a depth of not less than 2 inches nor more than 4 inches by discing, harrowing or tilling. Surface crusting caused by water during the interim must be loosened prior to the seeding operation. All soil erosion shall be filled prior to the seeding or sodding operation.
4. Top soil shall be of a quality to support the growth of grass. The area shall be in a smooth even condition, free of all debris, roots and stones larger than 1 inch in their largest dimension. All lumps of soil shall be pulverized, raked out or removed.
5. Grade lawn areas to a smooth, free draining and even surface with a loose, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain. Surface crusting caused by water during the interim between preparations and seeding or sodding must be loosened prior to installation.
6. The seed bed adjacent to curbs, walks or other paved areas shall be finished to a grade of 1/2" below the paved surface in the case of seeding and 3/4 inch below for sodding.
7. Restore prepared areas to specified condition if eroded, settled, or otherwise disturbed after fine grading and prior to seeding or sodding.

**E. FERTILIZING** - The fertilizer shall be applied with approved mechanical spreaders or with an approved hydraulic seeder at the rates specified in these provisions and shall cover the entire area uniformly. Any fertilizer blending shall be approved by the City Engineer or his authorized representative.

Fertilizers containing quick release sources of nitrogen can be used in the spring and fall when temperatures are not to exceed 80 degrees F. Caution must be taken in application to insure that the rate does not exceed one pound of nitrogen (N) per 1,000 square feet. Quick release fertilizers must be applied to dry foliage only to prevent phytotoxicity. The fertilizer source exhibiting the lowest salt index should be chosen to further prevent phytotoxicity.

Starter type fertilizer shall be incorporated into the soil prior to seeding or sodding. Maintenance fertilizer shall be applied after laying the sod.

**F. SITE CLEAN-UP** - Any remaining peat, soil, sand, rock or similar material which has been brought onto the site by work operations or otherwise, will be removed, and all other remaining debris will be disposed of. All ground area disturbed as a result of the sodding operations will be renovated to its original condition or to the required new condition.

### **33.31 COVER CROP (Temporary Seeding)**

A covercrop may serve as an alternative to providing soil cover when seeding or sodding is not an alternative. The application of a cover crop is to prevent soil erosion by wind and water. Cover crops may be used in the following situations:

- 1) The window for seeding or sodding has passed.
- 2) If a quick cover is necessary to prevent erosion prior to the completion of the project.
- 3) To be planted in conjunction with seed to provide quicker immediate coverage until the desired specified material is established.

4) The disturbed area will lay idle to construction for more than 14 days.

The following cover crops may also be used as mixes requiring adjustments made to the seeding rates.

**A. EARLY SEASON (SPRING COVER CROP)**

A spring cover crop is planted in early spring to provide soil cover during the spring.

Alternatives include:

<b>Type of Seed</b>	<b>Application Rate Lb/acre</b>
Annual Rye	20 - 25
Winter Rye	20 - 25
Fescue	15
Alfalfa (Ranger or Vernal)	18

Seeding Period: March 1 to May 20  
General Application: 1 to 1.5 bu/acre

Spring cover crops can be established by aerial seeding in the spring, as well as by drilling or broadcasting seed.

**B. MID-SEASON (LATE SUMMER/FALL COVER CROP)**

A mid-season cover crop is planted in late spring or early summer to provide soil cover during the late summer and fall. Alternatives include:

<b>Type of Seed</b>	<b>Application Rate Lb/acre</b>
Annual Rye	20 - 25
Fescue	15
Alfalfa (Ranger or Vernal)	18

Seeding Period: May 21 - July 20  
General Application: 1 to 1.5 bu/acre

Mid-Season cover crops can be established by aerial seeding in the late spring to summer, as well as by drilling or broadcasting seed.

**C. LATE SEASON (WINTER COVER CROP)**

A winter cover crop is planted in late summer or fall to provide soil cover during the winter. Plants selected need to possess enough cold tolerance to survive hard winters.

Alternatives include:

<b>Type of Seed</b>	<b>Application Rate Lb/acre</b>
Winter Rye	20 - 25
Fescue	15
Alfalfa (Ranger or Vernal)	18

Seeding Period: August 1 - September 30  
General Application: 1 to 1.5 bu/acre

NOTE: After August 31, Hairy Vetch may be used at the rate of 25 pounds per acre.

Winter cover crops can be established by aerial seeding in the late summer or fall, as well as by drilling or broadcasting seed.

### **33.32 SEEDING**

The seeding operation shall be restricted to the periods listed under the seeding mixtures (33.20) unless otherwise authorized by the City's Engineer or authorized representative. No work shall be accomplished when the ground is frozen, or otherwise untillable.

Appropriate mechanical spreaders approved the City's Engineer or authorized representative. Hydraulic seeding equipment also may be used when approved by the City's Engineer or authorized representative. All equipment used for the seeding operation shall be as per the manufacturer's recommendations.

**A. GENERAL** - The Contractor will provide all labor, equipment and materials necessary to furnish and install seed as required by the accepted plans and these STANDARDS AND SPECIFICATIONS.

**B. TOPSOIL** - Topsoil preparation will be as described in the Section, Topsoil Preparation, of these STANDARDS AND SPECIFICATIONS.

**C. SEED** - Seed will be furnished in sealed, unopened, standard containers and labeled in accordance with the USDA Rules and Regulations and the Federal Seed Act. Seed will be fresh, clean, pure live seed equal in quality to the standards for "Certified Seed". The City at the Contractor's expense may require tests of seed verification.

**D. MULCHING** – The required mulching shall be performed as soon as possible after seeding unless otherwise specified. Mulching shall be applied loose enough to allow sunlight to penetrate and air to circulate slowly, but thick enough to partially shade the ground, reduce water evaporation and reduce wind and water erosion. Mulching also shall be applied in such a manner as to remain in place.

#### **E. SEEDING METHOD –**

##### **1. FESCUE/BUEGRASS SEEDING**

a. Whenever possible, the seed will be applied using a drill-type seeder in good operating condition to drill the seed into a properly prepared seedbed. Seed will be sown to a depth of one-quarter inch (1/4") into a properly prepared seedbed. On sloping land, the final seeding operation will follow the general contour. All seeded areas will be top-dressed with either hydro-mulch, straw, or hay mulch after the seeding is completed when required.

b. In areas where the drill method of seeding cannot be used, a broadcast method may be substituted. If the broadcast method is used, the seeding rate must be doubled, and the area must be dragged after seeding followed by a suitable top dressing.

##### **2. NATIVE SEEDING**

a. Whenever possible, the seed will be applied using a drill-type seeder seeder in good operating condition. Seed will be sown to a depth of one-half inch (1/2") into a

properly prepared seedbed. On sloping land, the seed shall be applied following the general contour. All seeded areas will be top dressed with either hydro-mulch, or straw after the seeding is completed.

b. In areas where the drill method of seeding cannot be used, a broadcast method may be substituted. When using the broadcast method, the seeding rate must be doubled, and the area must be scarified and dragged after seeding, followed by a suitable top dressing.

**F. WATERING** - The Contractor will be responsible for watering the seeded area(s) a minimum of two (2) times per day (mid-morning and late afternoon) and for keeping the areas moist until the lawn is established. The Contractor will be responsible for water usage until such time as the project is accepted by the City.

### **33.33 SODDING**

Sod shall not be placed on frozen ground or during drought periods. The sod shall be moist when it is placed. Dry and/or frozen sod will not be accepted. Transverse joints between sod strips shall be staggered. The sod shall be placed carefully to produce tight joints. The sod shall be watered immediately after it is placed. Firming shall be accomplished by rolling the newly placed sod with an approved sod roller within seven (7) days after it is placed.

**A. GENERAL** - The Contractor will provide all labor, equipment and materials necessary to furnish and install all sod as required by the accepted plans and these specifications.

**B. TOPSOIL** - Topsoil preparation will be as described in this Section, Topsoil Preparation, of these specifications.

**C. CARE AND HANDLING** - Care will be exercised at all times to retain the native soil on the sod roots during transportation, handling and planting. Dumping sod from vehicles will not be permitted. The sod will be transported to the site within twenty-four (24) hours from the time it is cut, unless it can be stored to the satisfaction of the City. During delivery and while in stacks, all sod will be kept moist and protected from exposure to the wind, sun and freezing. All damaged or dry sod will be rejected.

**D. INSTALLATION** - The sod bed will be lightly sprinkled just prior to laying the sod. All sod strips will be placed tightly against each other so no open joints are apparent. Joints between ends of strips will be staggered at least one foot (1') between adjacent rows. At the end of walks and drives, the sod will have the same finish grade as the abutting surfaces. At curbs the sod will have the same finish grade as the top of the curb. Sod placed on slopes equal to three horizontal to one vertical (3:1) will be staked with wood or wire pins not less than six inches (6") long and spaced not more than thirty inches (30") apart. The pins shall be driven into the ground at an angle against the flow of the water until the top of the stake is three inches (3") above the sod. Sod laying will begin at the bottom of the slope and progress upward with strips laid transverse to the slopes. Immediately after the sod has been laid, it should be tamped or rolled with approved equipment to eliminate all air pockets and to provide a smooth, even surface. Immediately after rolling or tamping the sod, sufficient water will be applied to completely saturate the sod. The sod will be watered as often as

required to prevent it from drying out. Settled sod areas will be pulled up, regraded, relayed, and retamped.

**G. MAINTENANCE** - The proper care and maintenance of the sodded areas will be the responsibility of the Contractor until the work has been completed and accepted by City Council. The maintenance operations will begin as soon as each portion of the area is sodded. Maintenance will consist of repair and replacement of eroded areas, watering, mowing (when the sod is established), weeding, fertilizing, and resodding as necessary to provide an even, consistent stand of grass. All replacement sodding deemed necessary by the City will be done by the Contractor at his own expense.

**J. WATERING** - The Contractor will be responsible for watering the sodded area(s) a minimum of two (2) times per day (mid-morning and late afternoon) and for keeping the areas moist for a period of fourteen (14) days following the initial sodding operation and until the sod is established.

### **33.40 CONSTRUCTION APPURTENANCES**

#### **33.41 PLANTING SEASON**

The planting season for all material shall be:

SEED restricted to the periods listed under the seeding mixtures (section 33.20)

SOD March 1 to June 30, and Sept. 1 to Oct. 15

Sodding/Seeding operations shall be performed during this season only, except when prior written permission is obtained from the City Engineer or authorized representative. The actual sodding or seeding shall be performed during those times in this season which are normal for such work as determined by weather conditions, and accepted practice in the locality. Seeding and sodding shall not be performed on frozen sугrade.

#### **33.42 ACCEPTANCE AND ESTABLISHMENT PERIOD**

**A. INSPECTION** - Upon completion of planting the City Engineer or authorized representative will inspect the seeded/sodded area(s) for acceptability. The Contractor will be notified of the dates of this inspection. All items of work as required in the Specifications, the Special Provisions, and the plans shall have been performed prior to this inspection. Any item not been completed may make a plant unacceptable. Unacceptable materials may be allowed to remain in place without payment. A subsequent inspection may be made subsequent to the initial inspection to determine the acceptability of material and therefore, allowing payment for such materials.

**B. ESTABLISHMENT** - During the establishment period, the Contractor shall properly maintain all materials planted under the contract. The establishments procedures shall include, protective measures against pests and diseases, watering as often as required by necessity, seeding with a pre-emergent weed control or other approved means, and other establishment procedures as deemed necessary by the City Engineer or authorized representative, including the removal of any dead plant

material for the project. **Note: the Contractor is responsible for watering all plant material as necessary during the establishment period.**

The establishment period will follow the completion of all planting and shall extend for a period of:

SEED	Thirty (30) days
SOD	Fourteen (14) days

The establishment period will not begin until all of the following items of work as required in the Specifications, the Special Provisions, and the plans have been performed including proper installation of material, watering, fertilizing and mulching. All plant material shall be in viable growing condition when the project enters the establishment period.

**C. FINAL INSPECTION** - Upon completion of the establishment period, the City Engineer or authorized representative will make an inspection of the seeded/sodded material to identify any material to be replaced under warranty. The inspection will normally be made during the month that the establishment period terminates. The Contractor will be notified of the dates of this inspection. A list of quantities and locations will be provided to the contractor for replacement. Replacement of materials shall occur within receipt of this list. Plant replacement shall be at the Contractor's expense. Establishment procedures that have not been performed shall be brought to the Contractor's attention and may cause the establishment period to be extended. **All replacement plant material shall receive the establishment procedures referred to in this Section.** The Contractor will be notified in writing when his/her establishment responsibilities on the acceptable material have been terminated.

### **33.42 REPLACEMENT OF MATERIAL AND GUARANTEE PERIOD**

The guarantee period for seeded/sodded areas shall begin at the date of acceptance. The Contractor shall guarantee all material to be in healthy and flourishing condition for a period of one year from date of acceptance.

The Contractor shall replace, without cost, and as soon as weather conditions permit and within a specific planting period, all materials determined by the City Engineer, or authorized representative to be dead during or at the end of the guarantee period.

Replacement material shall closely match adjacent specimens of the same species that have been planted. Replacements shall be subject to all requirements, standards, special provisions and specifications stated herein.

The guarantee of all **replacement** plants shall extend for an additional period of one year from date of their acceptance and installation. In the event that replacement materials are not acceptable during or at the end of the said extended guarantee period, the City Engineer or authorized representative may elect subsequent replacement or credit (refund) for them.

### **30.70 QUALITY ASSURANCE**

**A. SOD** - Contract sodding work to a single firm specializing in sodding and growing of turf grass. Firm shall have satisfactory record of performance on completed projects of comparable size and quality.

**B. SEED** - Contract seeding work to a single firm specializing in seeding turf and/or wildflower mixes. Firm shall have satisfactory record of performance on completed projects of comparable size and quality.

**C. COMPLIANCE** - Contractor must comply with American Sod Producers Association Classes of sod materials.

**D. INSPECTION** - The City Engineer or authorized representative may inspect sod or seed at site before planting, for compliance with requirements for genus, species, variety, size and quality. The City Engineer or authorized representative may reject unsatisfactory or defective material at any time during progress of work. Rejected materials shall be immediately removed from project site.

### **33.71 SOURCE QUALITY CONTROL**

**A. CERTIFICATES OF INSPECTION** - Ship materials with certificates of inspection required by governing authorities. Comply with regulations applicable to sod, seed and materials.

**B. SUBSTITUTIONS** - Do not make substitutions. If specified sod, seed and other materials are not obtainable, submit proof of non-availability to City Engineer or authorized representative.

**C. CERTIFIED ANALYSIS** - Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable. The actual planting shall be performed during those times in this season which are normal for such work as determined by weather conditions, and accepted practice in the locality.

### **33.80 SUBMITTALS**

Certificate of Inspection: Submit certificates of inspection as required by governmental authorities.

Certified Analysis: Submit manufacturer's certified analysis, or, where applicable, Analysis of recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists. Include soil amendments and fertilizer materials.

List of Sources: Submit a written list of the supplies where the material was produced. Materials from unapproved sources will be rejected.

### **33.90 MEASUREMENT AND PAYMENT**

**A. MEASUREMENT AND PAYMENT** - The following methods of measurement and payment to the Contractor will be used on all projects Owned and let by the City of Kearney unless otherwise specified in the detailed specifications. Items not specifically listed in the

Bid or defined by this specification shall be considered subsidiary to construction and direct payment will not be made for these items.

**B. GENERAL** - The Contractor shall seed or sod all areas disturbed by construction operations. Limits of the sodding or seeding areas to be used in determining payment quantities are indicated which lies outside those limits shall be sodded or seeded at the Contractor's expense. No separate measurement or payment shall be made for soil preparation. This work shall be considered subsidiary to seeding or sodding for which direct payment is made.

**C. SODDING** - Sodding of the various types called for on the plans, completed in conformance with the plans and Specifications and accepted at the contract unit price bid per square foot for \_\_\_\_\_ SODDING. Such payment shall be full compensation for all labor, equipment, tools, materials, incidentals necessary to complete the work.

**D. SEEDING** - Seeding of the various types called for on the plans, completed in conformance with the plans and Specifications and acceptable to the City Engineer shall be measured to the nearest 0.1 of an acre or the nearest square foot and paid for at the contract unit price bid per acre or per square foot for SEEDING, TYPE \_\_\_\_\_. Such payment shall be full compensation for all labor, equipment, tools, materials, fertilizer, water establishment period and incidentals necessary to complete the work.

**E. COVER CROP SEEDING** – Cover Crop Seeding when called for on the plans, shall be measured to the nearest 0.1 of an acre and paid for at the contract unit price bid per acre for COVER CROP SEEDING. Such payment shall be full compensation for all labor, equipment, tools, materials, fertilizer, water establishment period and incidentals necessary to complete the work.