

**Section 002930****GRASSING****PART 1 - GENERAL**

The following specification is intended for use for the selection of materials, and installation of restoration grassing.

**1.1 SCOPE****1.1.1 General:**

- 1.1.1.1 This specification provides the requirements for the restoration grassing for the project. This specification applies to right-of-way restoration, easement restoration, common area restoration, and private and public property restoration. Restoration in right-of-ways or easements under the jurisdiction of the County, FDOT or other agency shall be restored in accordance with the requirements of the agency having jurisdiction. In the absence of any specific restoration requirements of the agency with jurisdiction, this specification shall apply.
- 1.1.1.2 Restoration of disturbed areas shall start within 14 calendar days after utility installation and shall be completed within 21 calendar days except as follows: Between October 1st and March 31<sup>st</sup>, for those disturbed areas specifically designated in the contract documents to be seeded, sodding as a substitute is allowed, but seeding shall be delayed until the following April at which time all seeding operations for these areas shall be initiated and completed during the months of April and May. During the delayed period, the contractor shall be responsible for maintenance, erosion control, dust control, etc. of the disturbed area to the satisfaction of the County. Once an area is disturbed, it shall be maintained by the contractor until restoration is completed to the satisfaction of the County and thereafter throughout the warranty period specified in the section entitled "Guarantee" in the General Provisions. Drought conditions shall not relieve the contractor from its responsibility to comply with this specification.
- 1.1.1.3 During removal of existing utilities and installation of new utilities, the contractor shall maintain (except at locations of utility street crossings), an undisturbed existing buffer strip of ground cover measuring a minimum of 3 feet in width from the edge-of-pavement (EOP) in order to minimize potential erosion along the pavement edge. The contractor shall be responsible for all costs to restore this buffer strip if disturbed during construction.
- 1.1.1.4 The existing ground cover must be replaced in-kind with the cover that existed prior to disturbance. Except that if the existing ground cover in the project area is sparse grass mixed with weeds then it shall be seeded as per these specifications (hydro seeding is acceptable), except as follows:
- a. Sod shall be placed around all catch basins at a minimum of 3' all sides.

- b. Sod shall be placed around all pipe ends, inverts and around top of pipe at a minimum of 5' by 5'.
- c. Swales/slopes at 2:1 or steeper shall be fully sodded.
- d. Swales/slopes at 3:1 to 2:1 shall be strip sodded with 2 strips on the front plus the one strip along the edge-of-pavement (EOP) and 2 strips on the back.
- e. At all four way intersections where utilities are installed, a 20 foot wide sod strip measured from the EOP shall be installed from a line perpendicular to the point of curvature of the EOP line to a line perpendicular to the point of tangency of the EOP line. Sod shall be placed only on corners of the intersection where utilities are installed unless otherwise directed by the County.
- f. At all tee intersections where utilities are installed, a 20 foot wide sod strip measured from the edge of pavement shall be installed from a line perpendicular to the point of curvature of the EOP line to a line perpendicular to the line of tangency of the EOP line. On the straight section of the tee, the 20 foot wide sod strip shall be installed across the entire length from lines perpendicular to the lines of tangency of the EOP on the opposite side of the roadway. Sod shall only be placed where utilities are installed unless otherwise directed by the County.
- g. All disturbed areas outside the ROW in easements shall be permanently restored by seeding (hydro seeding is acceptable).
- h. During the dry season months from October 1st to March 31st, the contractor at his/her option and cost, may temporarily restore disturbed areas that are to be seeded by planting seeds of an approved quick-growing species of grass, such as gulf rye, Italian rye, brown top millet, or other cereal grass. Temporary seeding includes the mulch required to hold the seed in place until growth is established. Temporarily restored areas shall be permanently restored by seeding during the wet season as stated previously.

1.1.1.5 All pervious areas disturbed during the construction shall be stabilized by a uniform perennial vegetative cover with a density of 100 percent over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions.

#### 1.1.2 Work Included

Unless specified otherwise, the Contractor shall furnish all materials, water, equipment, tools, labor and all other appurtenances necessary to do the work required under the contract to include, but not limited to, preparing the sub-base, placing topsoil, placing sod, seeding, temporary seeding, mulching, watering the sod and/or seed, mowing, and clean-up the site throughout the period of performance of the contract and the contract warranty period.

#### 1.1.3 Location of the Work

The location of this work is as shown on the Contract Documents.

#### 1.1.4 Coordination of the Work

The Contractor shall be responsible for the satisfactory coordination of laying the sod, seeding, and/or temporary seeding with other construction and activities in the project area. Delays in work resulting from lack of such harmony shall not in any way be a cause for extra compensation by any of the parties.

#### 1.1.5 Working Hours

The work shall be carried out in accordance with local ordinance and so as not to cause any unreasonable nuisance to affected residents. Under emergency conditions, this limitation may be waived by the consent of Charlotte county Utilities (CCU).

### 1.2 **METHOD OF MEASUREMENT & PAYMENT**

The work shall be measured and the compensation determined in the following manner:

#### 1.2.1 Sod:

Sod shall be paid for per square yard which shall include all equipment, materials, labor and all other appurtenances to prepare the sub-base, placing/grooming the topsoil, fertilizing, placing the sod, watering the sod, site cleanup and maintaining sodded area throughout the warranty period.

#### 1.2.2 Seeding:

Seeding shall be paid for per square yard which shall include all equipment, materials, labor and all other appurtenances to prepare the sub-base, placing/grooming the topsoil, fertilizing, seeding, mulching, watering, site cleanup, and maintaining seeded area throughout the Warranty period.

#### 1.2.3 Temporary Seeding:

A temporary seed cover during the dry season shall be considered incidental to the permanent restoration seeding, and shall include all equipment, materials, labor and all other appurtenances to prepare the sub-base, placing/grooming the topsoil, seeding, mulching, watering the seed, site cleanup, and maintaining the temporary seeded area throughout the warranty period.

#### 1.2.4 Topsoil:

Import or stockpile of topsoil and the placement of topsoil shall be considered incidental to the sod or seeding bid unit prices and no additional compensation will be made. The contractor shall consider removing and stockpiling of the existing topsoil material as part of the construction process as a means of assisting in the restoration of the disturbed areas.

#### 1.2.5 Fertilizer:

Fertilizer shall be considered incidental to the sod or seeding, and no additional compensation shall be made.

1.2.6 Watering:

Watering shall be considered incidental to the sod or seeding, and no additional compensation shall be made.

1.2.7 Mulch:

The supplying and placement of mulch shall be considered incidental to seeding, and no additional compensation shall be made.

**1.3 REFERENCED STANDARDS (Latest Revision)**

Florida DOT Standard Specifications for Road and Bridge Construction

**1.4 RELATED SECTIONS**

- 001570 - Erosion and Sediment Control
- 002320 - Gravity Sewer System
- 002325 - Force Mains
- 002330 - Low Pressure Sewer Systems
- 002335 - Potable Water and Reclaimed Mains
- 002345 - Fire Hydrants
- 002530 - Submersible Sewage Pump Lift Station-Package Design
- 002540 - Submersible Sewage Pump Lift Station- Standard Design
- 002240 - Dewatering

Note: This is only a partial listing of related sections. The Contractor shall be responsible to review the entire contract documents.

**1.5 SUBMITTALS**

1.5.1 General:

The contractor shall submit four (4) signed copies of the material submittals with the statement that the submittals have reviewed and the materials meet the contract specifications and/or standard details.

1.5.2 Sod:

The contractor shall submit a certificate from the sod producer stating the sod meets the requirements for “Florida Standard Grade” as defined by the Turfgrass Producers Association of Florida.

1.5.3 Seed:

The contractor shall submit a certificate for each bag of seed indicating present purity, active germination, and total germination.

#### 1.5.4 Fertilizer:

The contractor shall submit a manufacture's certificate of the analysis of the nitrogen, phosphorus potash, and complete micro-nutrients.

## **PART 2 - PRODUCTS**

### **2.1 WARRANTY REQUIREMENTS**

During the Contract warranty period, sodded, seeded, and temporary seeded (if applicable) areas that wash away shall be re-sodded and re-seeded (seeded or temporary seeded, which ever applies) at no additional cost to the County. If as a result of sodded, seeded, or temporary seeded areas washing away, damage to private and/or public property occurs, any damaged public and/or private property shall be repaired by the contractor to the satisfaction of the County at no additional cost to the County. Washing away can be a result of watering and/or rains. Damage includes soil filling storm culverts; water undercutting driveways, storm structures, and roads; etc. Where the area to be repaired has drainage inverts and side slopes, the drainage inverts and side slopes shall be restored the entire length prior to "Grassing". If requested, the contractor shall provide the County with surveying documentation that the inverts and slopes have been restored.

### **2.2 SOD**

Existing sod disturbed by construction activity shall be replaced in-kind. In all other areas where sod is required the sod shall be Argentine Bahia and shall be well matted with grass roots. The sod shall have no visible broad leaf weeds or no patches of foreign grasses. Florida standard grade sod shall be neatly mowed and mature enough that when grasped at one end, it can be picked-up and handled without damage. The sod shall be sufficiently thick to secure a dense stand of live grass; grass plugs shall not be used. The sod shall be live, fresh, and uninjured at the time of planting. The sod shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand handling during laying. The sod shall be shaded and kept moist from the time of digging until laying of the sod.

### **2.3 SEEDING**

2.3.1 All seed shall meet the requirements of the Florida Department of Agriculture and Consumer Service and all applicable Florida state laws and shall be approved by the County before use. The seed shall have been harvested from the previous year's crop. All seed bags shall have a label attached stating the date of harvest.

2.3.2 Argentine Bahia grass seed shall have a minimum pure seed content of 95% with a minimum active germination of 85% and contain less than 0.5% weed and crop seed.

2.3.3 Bermuda grass seed shall be of a common variety with a minimum pure seed content of 95%, and a minimum germination of 85%.

2.3.4 Gulf rye or an approved annual type rye grass (or brown top millet as approved) to be used in conjunction with seed, to establish early ground cover. Annual rye grass seed shall have a

minimum pure seed content of 95% with a minimum germination of 90% and a maximum of 150 noxious seeds per pound.

- 2.3.5 Brown top millet seed shall have a minimum per seed content of 98% with a minimum total germination of 80% and a maximum of 150 noxious seeds per pound.

## **2.4 TEMPORARY SEEDING**

- 2.4.1 Gulf rye or an approved annual type rye grass shall be used to establish temporary ground cover. Annual rye grass seed shall have a minimum pure seed content of 95% with a minimum germination of 90% and a maximum of 150 noxious seeds per pound.

- 2.4.2 Brown top millet may also be used to establish temporary ground cover and shall have a minimum per seed content of 98% with a minimum total germination of 80% and a maximum of 150 noxious seeds per pound.

## **2.5 FERTILIZER**

Fertilizer shall be commercial grade, controlled release, granular fertilizer consisting of blend of coated prilled granule urea with iron composite included in a slowly soluble, freed flowing, and uniform form conforming to Florida DOT Specification 982-1 and bearing the manufacturer's guaranteed statement of analysis by weight of 12 parts nitrogen, 8 parts phosphoric acid, and 8 parts potash plus complete micronutrient including magnesium, sulfur, zinc, manganese, copper, and boron.

## **2.6 WATERING**

The water shall be free of petroleum products, pesticides, any other deleterious constituents, acid, alkali, or organic materials and shall have a pH of 7.0 to 8.5.

## **2.7 MULCH**

- 2.7.1 Dry mulch material for non-hydro-seed areas shall be straw or hay consisting of oat, rye, or wheat straw or Pongola, peanut, coastal Bermuda, or Bahia grass hay. Only un-deteriorated mulch which can be readily be cut into the soil shall be used. The mulch shall be free of weeds, weed seed, and other deleterious materials and shall have a system to stabilize the mulched area to stop erosion from either rain or wind as approved by the County.
- 2.7.2 If areas are hydro seeded, the mulch material shall be wood cellulose fiber material for use in hydro seeding slurry, especially prepared for this purpose, or an approved substitute.

## **PART 3 - EXECUTION**

### **3.1 GENERAL REQUIREMENTS**

- 3.1.1 The area to be restored shall be brought to finish grade and shall be prepared by disk-harrowing and thoroughly pulverizing the soil to a depth of at least 6 inches. The prepared soil shall be loose and reasonably smooth. It shall be reasonably free of large clods, roots, and

other material which will interfere with the work or subsequent mowing and maintenance. No subsequent operations shall be commenced until the OWNER has approved the condition of the prepared areas.

- 3.1.2 Soil shall have a pH of at least 6.5 and less than or equal to 8.0, and if not, a required amount of dolomite limestone designated for agricultural use shall be added.
- 3.1.3 Fertilizer shall be uniformly applied at a rate of 10 pounds per 1000 square feet and mix into soil at a depth of approximately 4 inches.
- 3.1.4 All sodded, seeded, and temporary seeded areas shall be thoroughly watered until growth is established.
- 3.1.5 Areas to be restored shall be completed to a condition equal to or better than original condition and to the satisfaction of the County.

### **3.2 WATERING PROGRAM**

- 3.2.1 The contractor shall maintain a watering program throughout the project contract warranty period in order to assure optimum growth conditions. The watering program shall be balanced between the contractor watering and rainfall.
- 3.2.2 Once the seed is planted, the contractor shall ensure the soil is kept evenly moist until germination. After germination, the grass shall be watered (rainfall and/or irrigation) daily (not less than one (1) inch per week) until the lawn is well established (a minimum of two (2) inches high). The watering shall not cause saturation of the germinated seed and shall not be done using a strong spray. The contractor shall provide for CCU approval the method he will use to measure the quantity of water being applied to the germinated grass.
- 3.2.3 Sod: After rolling the sod to ensure good root contact with the soil and to eliminate air pockets, the sod shall be watered at least 2 times a day for at least the first ten (10) days to keep the sod constantly moist.

### **3.3 SODDING**

- 3.3.1 All sod shall be used within 3 days of cutting.
- 3.3.2 The sod shall be stacked and be properly watered if not laid within 24 hours of cutting. The sod shall be shaded and kept moist from the time of digging until laying.
- 3.3.3 The sod shall be laid in 12" x 24" blocks or larger except where the area to be sodded is smaller. The joints between blocks of sod perpendicular to the roadway shall be staggered. The individual blocks shall be firmly fitted against adjacent blocks and lightly tamped to provide uniform contact with the soil.
- 3.3.4 Cracks or gaps shall be filled with sod and rolled with a minimum one ton roller.
- 3.3.5 Sod in drainage ditches shall be staggered to avoid a continuous seam along the line of flow.

- 3.3.6 On areas where the sod may slide due to height and slope, the sod shall be secured with wooden stakes or metal pins driven through the sod blocks into the firm earth at intervals approved by the County.
- 3.3.7 The sod shall be fertilized twice per year through the warranty period after laying. Prior to the application of fertilizer, the turf quality shall be evaluated for need and the proposed fertilizer nutrient mix shall be approved by the County.
- 3.3.8 The Contractor shall maintain disturbed areas until acceptable vegetation is reestablished.

### **3.4 SEEDING**

- 3.4.1 The seed mixture shall be in the following pounds per acre: Bermuda 30 lbs., Argentine Bahia 120 lbs. and brown top millet 75 lbs. unless otherwise approved by the County.
- 3.4.2 Mulching – When the mulch material is to be included in the slurry mixture, it shall be applied at the rate of 1000 pounds of mulch material per acre when the moisture content of the “air-dry” mulch does not exceed ten percent. If the moisture content exceeds ten percent, a proportional increase of mulch material shall be made and approved by the County. The application of the slurry over the seeding areas shall be in accordance with the directions of the manufacturer of the hydro seeding equipment. The slurry mixture shall be maintained uniform by continuous agitation during the application.
- 3.4.3 While the soil is still loose and moist, the seed shall be spread uniformly over the grassing area using either a rotary or drop wheeled mechanical spreader. Hand held spreaders shall only be used where steep slopes make machine-spreading impractical when approved by the County.
- 3.4.4 When mulching, approximately two inches of loose thickness mulch material shall be applied uniformly over the seeded area, and the mulch material shall be cut into the soil so as to produce a loose mulch thickness of three to four inches.
- 3.4.5 Immediately after completion of the seeding, the entire grassed or mulched area shall be rolled thoroughly with a cult packer, traffic roller, or other suitable equipment.
- 3.4.6 Fertilizer shall be re-applied approximately five weeks after germination.
- 3.4.7 The Contractor shall maintain disturbed areas until acceptable vegetation is reestablished.

### **3.5 TEMPORARY SEEDING**

- 3.5.1 Prior to seeding the proposed mixture of gulf rye and brown top millet shall be approved by the County. While the soil is still loose and moist, the seed shall be spread uniformly over the grassing area using either a rotary or drop wheeled mechanical spreader. Hand held spreaders shall only be used where steep slopes make machine-spreading impractical when approved by the County.
- 3.5.2 When mulching, approximately two inches of loose thickness of mulch material shall be applied uniformly over the seeded area, and the mulch material shall be cut into the soil so as to produce a loose mulch thickness of three to four inches.

3.5.3 Immediately after completion of the seeding, the entire grassed or mulched area shall be rolled thoroughly with a cult packer, traffic roller, or other suitable equipment.

**3.6 MOWING**

3.6.1 The grass shall be mowed when it reaches a height of 9 inches and subsequently each time when it reaches a height of 9 inches to a height of 6 inches.

3.6.2 The contractor shall maintain the mowing program until accepted by the County and through the project's contract warranty period.

**END OF SECTION**