

**SECTION 32 92 19 – SEEDING****PART 1 - GENERAL**

## 1.01 SUMMARY

- A. Section Includes
  - 1. Fertilizing.
  - 2. Seeding.
  - 3. Hydroseeding.
  - 4. Mulching.
  - 5. Maintenance
  
- B. Related Sections:
  - 1. Section 31 22 13 - Rough Grading: Rough grading of site.
  - 2. Section 31 23 33 - Trenching: Rough grading over cut.
  - 3. Section 32 91 13 - Soil Preparation
  - 4. Section 32 91 19 - Landscape Grading: Preparation of subsoil and placement of topsoil in preparation for the Work of this section.
  - 5. Section 32 92 00 – Turf and Grasses.

## 1.02 REFERENCES

- A. Pennsylvania Department of Transportation Publication 408 Specifications.
  
- B. Pennsylvania Seed Act of 1965, Act 187, as amended.
  
- C. Agricultural Liming Materials Act of 1978, P.L. 15, No. 9 (3 P.S. 132-1), as amended.
  
- D. Pennsylvania Soil Conditioner and Plant Growth Substance Law, Act of December 1, 1977, P.L. 258, No. 86 (3 P.S. 68.2), as amended.
  
- E. ASTM International:
  - 1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

## 1.03 DEFINITIONS

- A. Weeds: Vegetative species other than specified species to be established in given area.

## 1.04 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
  
- B. Contractor's Qualifications: Submit Contractor's Qualifications complying with requirements of Qualifications.
  
- C. Certificates:
  - 1. Prior to use or placement of material, submit certifications of material

composition of the following for approval:

- a. Seed mixture(s): certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity, germination, and weed seed for each grass seed species.
  - b. Fertilizer
  - c. Lime
- D. As part of “Close out Submittals” contractor shall provide a log depicting the following:
- 1. Soils analysis reports including date of test and locations.
  - 2. Type of seed mixture.
  - 3. Amendments applied.
  - 4. Dates of application and seeding.
  - 5. Dates and type of maintenance activities performed including mowing.

#### 1.05 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.
- B. Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
- C. Analysis and Standards: Package standard products with manufacturer have 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.
- D. Pre-Installation Meeting: A pre-installation meeting shall be scheduled, in writing, between the Prime Contractor, Subcontractors and the Engineer to review the scope of work in this Section, coordination with other work, special project conditions and quality standards. It shall be the Prime Contractor’s responsibility to notify and schedule the pre-installation meeting with the Engineer a minimum of two (2) weeks prior to the anticipated start of the work specified under this Section.

#### 1.06 QUALIFICATIONS

- A. Seeding and lawn work to be completed by a single firm specializing in lawns and seeding work.
  - 1. The Contractor shall have been actively and directly engaged in constructing natural turf lawns for a period of five (5) years or more, and provide proof of five (5) or more installations completed by them which have been in use for three (3) or more years.
  - 2. In addition, the Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request.

3. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work specified herein.

B. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

#### 1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Seed:

1. Deliver seed fully tagged and in separate, sealed packages according to species or seed mix. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be accepted.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

#### 1.08 COMPLETION OF INSTALLATION AND ACCEPTANCE

A. Completion of Installation shall consist of all operations including topsoil testing, analysis and submittal, topsoil preparation, removal of stones and all extraneous objectionable material, application of soil amendments and fertilizers, planting grass seed, mulching and erosion mats in accordance with requirements. At the completion, 50% of the value is eligible for payment.

B. Acceptance of lawns shall be after minimum maintenance is completed when a full, even, healthy, uniform, close, stand of specified grass has been established at least 2½ inches in height free of weeds, stones, disease, bare spots, and surface irregularities. A written statement will be provided by the Engineer when this is achieved. At the time these conditions are met, the remaining 50% of the value is eligible for payment.

#### 1.09 MAINTENANCE SERVICE

A. Maintain seeded areas immediately after placement until Date of Substantial Completion and grass is well established and exhibits vigorous growing condition. A minimum of three cuttings must be completed.

### **PART 2 - PRODUCTS**

#### 2.01 FERTILIZER

A. Basic Dry Formulation Fertilizer: Analysis 0-20-20 and as defined by the Pennsylvania Soil Conditioner and Plant Growth Substance Law.

B. Starter Fertilizer: Analysis 10-5-5 or 12-6-6 and as defined by the Pennsylvania Soil Conditioner and Plant Growth Substance Law.

2.02 LIME

- A. Pulverized Agricultural Limestone. Conforming to the requirements of the Agricultural Liming Materials Act of 1978, P.L. 15, No. 9, as amended; The Agricultural Liming Materials Rules and Regulations (Title 7-Part V); 7 PA Code, Chapter 108 for labeling requirements; and as follows:
1. 50% Total oxides (total calcium oxide and magnesium oxide equivalent) (ASTM C 25)
  2. 89% Calcium carbonate equivalent (% by weight) (ASTM C 25)
  3. Fineness (minimum % by weight)
    - a. 95% passing No. 20 sieve
    - b. 60% passing No. 60 sieve
    - c. 50% passing No. 100 sieve
- B. Furnish material having an Effective Neutralizing Value (ENV) of not less than 90 when calculated according to 7 PA Code Chapter 108 as follows:
1.  $ENV = (a) + (b) + (c) \times CCE$  divided by 100
    - a. (a) = % by weight passing 20 mesh - % passing 60 mesh x 0.4
    - b. (b) = % by weight passing 60 mesh - % passing 100 mesh x 0.8
    - c. (c) = % by weight passing 100 mesh x 1.0
    - d. CCE (Minimum Calcium Carbonate Equivalent) = % by weight of calcium carbonate

2.03 SEED

- A. Fresh, clean, dated material from the last available crop and within the date period specified, with a date of test not more than 9 months prior to the date of sowing. Percentage of pure seed present shall represent freedom from inert matter and from other seeds distinguishable by their appearance. All seeds will be subject to analysis and testing.
- B. See "Seeding Table" at end of this Section.

2.04 MULCHING MATERIALS

- A. Mulches for seeded areas shall be one, or a combination of, the following:
1. Hay:
    - a. Cured to less than 20% moisture content by weight.
    - b. Contain no stems of tobacco, soybeans, or other coarse or woody material.
    - c. Timothy hay or mixed clover and timothy hay.
  2. Straw:
    - a. Cured to less than 20% moisture content by weight.
    - b. Contain no stems of tobacco, soybeans, or other coarse or woody material.
    - c. Wheat or oat straw.
  3. Wood Cellulose:

- a. No growth or germination inhibiting substances.
- b. Green, air dried. Packages not exceeding 100 pounds.
- c. Requirements:
  - Moisture content: 12%  $\pm$  3%
  - Organic Matter: 98.6%  $\pm$  0.2% on the oven dry basis.
  - Ash content: 1.4%  $\pm$  0.2%
  - Minimum Water-Holding Capacity: 1000%

### PART 3 - EXECUTION

#### 3.01 FERTILIZING

- A. After seed bed areas have been brought to proper compacted elevation, thoroughly loosen to a minimum depth of 4 inches by discing, harrowing, or other approved methods. Do not work topsoiled areas when frozen or excessively wet.
- B. Liming: Distribute limestone uniformly at application rate recommended by soil analysis or 100 pounds per 1,000 square feet. Work lime into top 6 inches of soil.
- C. Apply fertilizer at application rate recommended by soil analysis or at a rate of 50 pounds per 1,000 square feet.
- D. Apply after smooth raking of topsoil and prior to roller compaction.
- E. Do not apply fertilizer at same time or with same machine used to apply seed.
- F. Mix fertilizer thoroughly into upper 4 inches of topsoil.
- G. Lightly water soil to aid dissipation of fertilizer. Irrigate top level of soil uniformly.

#### 3.02 SEEDING

- A. Apply seed at rate of shown in the schedule evenly in two intersecting directions. Rake in lightly.
- B. Do not seed areas in excess of that which can be mulched on same day.
- A. Proceed with and complete seeding work as rapidly as portions of site become available, working within seasonal limitations for each kind of seeding work required.
  - 1. Planting Time: Permanent grass to be seeded no later than May 15th for Spring seeding and only between September 1 and October 15 for Fall planting.
  - 2. Temporary grass seeding is required if areas are exposed for longer than 20 days or areas are not permanently established prior to the Winter season.
- C. Do not sow immediately following rain, when ground is too dry, or when winds are over 10 mph.
- D. Roll seeded area with roller not exceeding 112 lbs/linear foot.

- E. Immediately following seeding and rolling, apply mulch to thickness of 1/8 inches. Maintain clear of shrubs and trees.
  - 1. When mulch is applied to grass areas by blowing equipment, the use of cutters in the equipment will be permitted to the extent that a minimum of 95% of the mulch is 6" or more in length. For cut mulches applied by the blowing method, achieve a loose depth in place of not less than 2".
  - 2. Anchor mulch by application of Hydro-Spray TAC in accordance with manufacturer's recommendations. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean such areas where damage occurs.
  - 3. At time of application and until acceptance do not allow mulch to accumulate in concentrated areas i.e. ponding from rain, wind, etc., to avoid depletion of nitrogen as a result of mulch decomposition. If such conditions develop, Contractor shall be responsible for providing additional amendments to remedy the situation.
  
- F. Apply water with fine spray immediately after each area has been mulched. Saturate top 4 inches of soil.
  
- G. Uniformly sow specified seed mix by use of approved hydraulic seeder, power-drawn drill, power-operated seeder, or hand-operated seeder or by hand. Do not seed when winds are over 5 mph. Distribute seed evenly over entire area by sowing equal quantity in 2 directions at right angles to each other
  
- H. Upon completion of sowing, cover seed to an average depth of 1/4" by hand reraking or approved mechanical methods.

### 3.03 HYDROSEEDING

- A. Apply fertilizer, mulch and seeded slurry with hydraulic seeder at rate of shown in the Seeding Schedule evenly in one pass.
  
- B. After application, apply water with fine spray immediately after each area has been hydroseeded. Saturate to 4 inches of soil and maintain moisture levels two to four inches.

### 3.04 SEED PROTECTION

- A. Cover seeded slopes with erosion fabric where shown on the Drawings. Roll fabric onto slopes without stretching or pulling.
  
- B. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Overlap edges and ends of adjacent rolls minimum 12 inches. Backfill trench and rake smooth, level with adjacent soil.
  
- C. Secure outside edges and overlaps at 36 inch intervals with stakes.
  
- D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.

- E. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

### 3.05 RECONDITIONING LAWNS

- A. Recondition existing lawn areas damaged by Contractor's operations including storage of materials or equipment and movement of vehicles. Also recondition lawn areas where settlement or washouts occur or where minor regrading is required.
- B. Provide fertilizer, seed or sod, and soil amendments as specified for new lawns and as required to provide satisfactorily reconditioned lawn. Provide new planting soil as required to fill low spots and meet new finish grades.
- C. Cultivate bare and compacted areas thoroughly to provide a planting bed depth of 6 inches.
- D. Remove diseased or unsatisfactory lawn areas; do not bury into soil. Remove topsoil containing foreign materials resulting from Contractor's operations including oil drippings, stone, gravel, and other construction materials; replace with new topsoil. Legally dispose of removed material off site.
- E. Where substantial lawn remains (but is thin), mow, rake, aerate if compacted, fill low spots, remove humps, cultivate soil, fertilize, and seed. Remove weeds before seeding. If weeds are extensive, apply selective herbicides as required. Apply a seedbed mulch, if required, to maintain moist condition.

### 3.06 MAINTENANCE BY CONTRACTOR

- A. Erect barricades and warning signs as required to protect newly planted areas from pedestrian and vehicular traffic. Maintain barricades throughout maintenance period until lawn is accepted.
- B. Contractor shall begin maintenance of lawns immediately after each area is planted and provide the equipment and labor necessary to mow and irrigate all seeded areas until acceptance in accordance with conditions of Substantial Completion.
  - 1. If seeded in Fall and not considered acceptable at that time, continue maintenance during following Spring until Substantial Completion of lawn.
  - 2. Acceptable lawn is defined under project warranty by Substantial Completion.
- C. Mow grass at regular intervals to maintain at maximum height of 2-1/2 inches. Do not cut more than 1/3 of grass blade at each mowing. Perform first mowing when seedlings are 40 percent higher than desired height.
- D. Maintain all lawns by fertilizing, weeding, mowing and other operations such as rolling, regrading, re-planting as required to establish a smooth, acceptable lawn, free of eroded or bare areas. Remove all stones 1" and larger in any dimension and legally dispose of offsite.

1. Neatly trim edges and hand clip where necessary.
  2. Immediately remove clippings after mowing and trimming. Do not let clippings lay in clumps.
  3. Water to prevent grass and soil from drying out.
  4. Roll surface to remove minor depressions or irregularities.
  5. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.
  6. Immediately reseed areas showing bare spots.
  7. Repair washouts or gullies.
- F. Those areas which do not show a prompt catch or grass within 14 days of seeding or sodding shall be re-seeded or re-sodded until complete grass catch occurs.
- G. Apply second fertilizer application 3 to 4 weeks after seeding emergence and when grass is dry.
1. Use fertilizer that will provide at least 1.0 lb. of actual nitrogen per 1,000 sq. ft. of lawn area.

### 3.07 FINAL COMPLETION

- A. When work is finally completed, including maintenance, Engineer will, upon request, make an inspection to determine acceptability.
1. Lawn work may be inspected for acceptance in parts agreeable to Engineer, provided work offered for inspection is complete, including specified maintenance requirements.
  2. Acceptance of lawns is defined elsewhere in this section.
- B. Replant rejected work and continue specified maintenance until re-inspected by Engineer and found to be acceptable.
- C. "Final completed" seeded lawns will be acceptable provided maintenance, and warranty requirements have been met.

**END OF SECTION**