

32 00 00 EXTERIOR IMPROVEMENTS

32 90 00 PLANTING

.02 Lawns and Grasses

A. General

1. Intent:

- a. The work in this section specifies the labor, materials, and installation methods necessary to establish the highest quality turf areas.

2. Protection of Existing Utilities

- a. Prior to any work being performed the Contractor shall insure that all existing utilities within and surrounding the project site have been clearly marked in accordance with the Pennsylvania Underground Utility Line Protection Act, Act 287 as amended by Act 199.

4. Submittals:

- a. 3 months prior to the start of any seeding activity, the Contractor shall have the existing soil tested by the Penn State University Agricultural Analytical Services Laboratory. Soil test report to be a full physical property analysis and shall include tests for the following:
 - i. Standard Fertility Test (pH, phosphorus, potassium, calcium, and magnesium)
 - ii. Total nitrogen
 - iii. Organic matter
- b. The Contractor shall submit a Percolation Rate Test prior to the commencing of any seeding activity. This test is intended to determine the rate of percolation of the existing subgrade.
- c. The Contractor will provide an inspection certification indicating the origin and health of seed and/or sod material.
 - i. Seed must be Blue Tagged Certified Seed and must contain requirements indicated in PART B.7 – LAWN SEED. **The Contractor shall submit analysis tags conforming to the Pennsylvania Department of Agriculture seed labeling laws to the** University Representative for approval. Tags will show percentage of seed varieties, weed seed, inert matter, and date of “Germination Test” done within a nine-month period prior to sale of the seed. **No noxious weed seed is allowed.**
 - ii. Sod must be certified and must contain requirements indicated in PART B.8 – LAWN SOD.

- d. The Contractor shall provide submittals indicating the type and application rates of fertilizers as recommended in accordance with the soil test.
 - e. Chemical Spraying Program: No spraying of herbicides, insecticides, fungicides, nematicides, fumigants, or other chemicals shall be done without first submitting a spray program to the University Representative. Application of herbicides will only be permitted by certified applicators. Applicators should follow all notification requirements of the University and consult any Chemical Hypersensitivity Registries for the area.
5. Delivery, Storage, and Handling:
- a. Seed
 - i. Each seed container shall be in sealed bags labeled by manufacturer and/or grower and indicating weight and analysis.
 - ii. Bulk deliveries of seed shall be accompanied with analysis labels attached to each container specifying percentage of germination, purity, and noxious weed content.
 - iii. Seed shall be kept in dry storage away from contaminants, insects, and rodents.
 - c. Sod
 - i. All sod shall be reviewed by the University Representative at the job site prior to installation. The University Representative reserves the right to reject any sod they deem unacceptable.
 - ii. All sod delivered from the supplier shall be installed on the same day as delivery.
 - iii. Each palette, flat, or specified group of sod shall be labeled by the grower or manufacturer as separate items.
 - iv. During delivery and storage, sod materials shall be protected from any drying or contamination by detrimental material.
 - v. Sod shall not be dropped or dumped from vehicles.
 - d. Fertilizer and Lime: Each container of fertilizer and/or lime shall be labeled by manufacturer as separate items indicating weight and analysis of the container.
 - e. Topsoil: Topsoil shall not be muddy or frozen at time of grading.
6. Job Conditions:
- a. Turf areas will be free of waste or debris developed by other trades. Any discrepancy from such conditions shall be reported to the University Representative before beginning any installation.

7. Grading and Topsoil:

- a. The Contractor shall grade all turf areas indicated on the drawings. In the event there are discrepancies between the construction drawings and on-site conditions, the Contractor shall notify the University Representative before beginning any installation.
- b. The Contractor shall remove all topsoil and stockpile it on site. All topsoil is the property of the University. Excess topsoil removed and not required for finished grading shall be removed by the Contractor and stockpiled as directed by the University Representative at a location on University property.

B. Materials

1. Quality Assurance:

a. Seed

- i. Seed Producer: **Distributor that represents manufacturer** specializing in grass seed production with minimum of 5 years' experience **and licensed** by the Pennsylvania Department of Agriculture as outlined in Title 3 (Agriculture) of the Pennsylvania Consolidated Statutes.
- ii. Seed: Must comply with all Commonwealth of Pennsylvania seed certifications.

c. Sod

- i. Sod Producer: Manufacturer specializing in sod production and harvesting with minimum of 5 years experience and certified by the Pennsylvania Department of Agriculture as outlined in Title 3 (Agriculture) of the Pennsylvania Consolidated Statutes.
- ii. Sod: Minimum age of 12 months with root development that will support its own weight, without tearing, when suspended vertically by holding upper two corners.
- iii. Sod type to be approved by the University Representative.

3. Commercial Fertilizers: In accordance with the soil test recommendations, fertilizer shall be in bags showing weight, analysis, and manufacturer's name. **Minimum 40% slow release nitrogen component with analysis label for approval from University representative prior to purchase.**

4. Lime: In accordance with the soil test recommendations, lime shall be high magnesium ground limestone containing not less than 85 percent total carbonates, 95 percent passing a 20-mesh sieve, 40 percent passing a 60-mesh sieve and a minimum of 30 percent passing a 100-mesh sieve.

5. Organic Amendments: In accordance with the soil test recommendations, organic matter shall be recycled composted leaf mulch.

6. Topsoil: Topsoil will be provided in accordance with Section 2.13 – Stockpiling, Furnishing, and Placing Topsoil.
7. Herbicides: Non-selective herbicide shall be a 41% glyphosate concentrate such as Round-Up as manufactured by Monsanto or approved equal and shall only be applied in accordance with label instructions for the Chemical Spraying Program.
8. Lawn Seed:
 - a. Shall be clean and fresh, packed in sealed 50# bags showing net weight, composition of mix, date of germination tests and supplier's name as legal by the Pennsylvania Department of Agriculture laws regarding seed labelling.
 - b. Seed must be Blue Tagged Certified with an attached analysis tag. Seed must not contain more than 0.03% by weight weed seed, no more than 1.5% inert matter, no more than 0.2% other crop seed. No noxious weed seed or undesirable grass species are allowed.
- C. Composition of seed blend shall be a minimum of 3 different turf type tall fescue varieties, with a blended ratio of 20% to 40% of each variety for a total of 100%. Varieties shall represent the top 1/3 of performers in the most recent final or current year National Turfgrass Evaluation Program (www.ntep.org) for the Northeast USA. In addition, one of the varieties may be a rhizomatous type as advertised by the seed marketer. Seed mixture must be approved by the University Representative prior to purchase for seeding.
8. Lawn Sod:
 - a. Sod type to be a turf type tall fescue blend consisting of 3 different varieties and no more than 10 % of an improved Kentucky bluegrass by weight. Specs for tall fescue varieties are as outlined on item 7a and 7b above.
 - b. Sod shall be field grown in same climatic conditions as that of the project site.
 - c. Sod shall be strongly rooted, not less than 18 months old, free of weeds and undesirable native grasses. Sod must be capable of growth and development when planted.
 - d. Sod shall be free of pests.
 - e. Sod shall be installed within 36 hours from the time it is cut.
10. Wood Cellulose Fiber Mulch:
 - a. No straw or hay mulch will be accepted.
 - b. In areas with slopes >3:1 erosion control matting shall be used as approved by the University Representative
 - c. Shall consist of especially prepared wood cellulose processed into a uniform fibrous physical state.

- d. Shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
- e. Shall contain no germination or growth inhibiting factors.
- f. Shall be manufactured and processed in a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with other additives to form a homogeneous slurry.
- g. Shall form a blotter-like groundcover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
- h. Shall not contain elements or compounds at concentration levels that will be phyto-toxic.
- i. Must conform to the following physical requirements.
 - i. Fiber length to approximately 10 mm. Diameter approximately 1 mm.
 - ii. pH range of 4.0-8.5
 - iii. Ash content of 1.6% maximum
 - iv. Water holding capacity of 90% minimum

D. Execution

1. Site Preparation

a. Grading:

- i. Prior to commencing any finished grading the Contractor shall notify the University Representative allowing enough time for a thorough inspection of the subgrade.
- ii. Prior to any work the Contractor shall have all utilities located by calling PA One-Call at (800)242-1776.
- iii. Prior to grading, apply Round-Up or other approved herbicide as per the manufacturer's directions to eliminate any existing weeds. Allow sufficient time for the herbicide to take effect.
- iv. Perform all finished grading necessary to bring site to required finished elevations indicated on the grading plan.
- v. If the general area is hard pan, the sub-grade shall first be rototilled or chisel plowed at least 12 inches deep to permit proper loosening, drainage, and preparation of the ground. The sub-grade shall be loosened and graded by harrowing, disking, or dragging, as dictated by the condition of the sub-grade. The entire sub-grade shall then be raked and all stones over ½ inch, grade stakes, rubbish, and general

debris removed. A final inspection of the sub-grade by the University Representative is required before topsoil is spread

b. Topsoil:

- i. Use topsoil stockpiled on the site during earthwork operations and provide any additional topsoil, at no additional cost to the University, as required on the Grading Plan and as outlined in Section 2.13 – Stockpiling, Furnishing and Placing Topsoil.
- ii. Topsoil shall be spread with approved equipment to a minimum depth of 6 inches and compacted to 90% bulk density. Any surface irregularities shall be corrected to prevent the formation of low spots and pockets that would retain water.
- iii. Topsoil shall not be placed when the subgrade is frozen, excessively wet, or extremely dry, and no topsoil shall be handled when in a frozen or muddy condition.
- iv. During the preparation for seeding and/or sodding all stones over ½ inch in any dimension or any other rubbish, debris, or other materials which would be detrimental to seeding, sodding, or turf maintenance will be removed.
- v. After completion of topsoil placing and approval of finish grading, remove any excess topsoil from the site and deliver to location determined by the University Representative.
- vi. Leave finish graded area clean and well raked, ready for lawn work.

d. Preparation of Surface for Seeding and Sodding:

- i. Apply lime and basic fertilizer if required by the soil test at the recommended rate.
- ii. Immediately after lime and fertilizer application go over the entire area with a rototiller, or other approved piece of equipment and loosen surface at least 3 inches deep and then hand rake to a smooth even surface.
- iii. Spread starter fertilizer uniformly at the rate determined by the soil test for new lawns.
- iv. Add organic matter at the rate required by the soil test.

3. Execution of Work for Seeding:

- a. As soon as the ground has been properly prepared and approved for seeding by the University Representative, sow turf type tall fescue grass seed at the rate of

8 lbs. per 1,000 sq. ft., total, in two operations at right angles to each other, using a suitable mechanical seeder or sowing by hand for small areas.

- b. Unless the seeder covers the seed with soil as it sows, rake to obtain a light covering of soil over the seed after sowing 1/8 to ¼ inch in depth maximum, then roll very lightly with an empty water roller.
 - c. Do no seeding in adverse weather or in wet conditions.
 - d. After seed application, wood cellulose fiber mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber mulch shall be mixed with water, and the mixture shall contain a maximum of 50 lbs of wood cellulose fiber per 100 gallons of water. In areas where erosion may be a problem, use an organic tackifier erosion fabric, or approved equal in accordance with the manufacturer's instructions.
4. Execution of Work for Sodding:
- a. Lay sod on the same day as delivery to prevent dehydration.
 - b. Lay sod tight with no open joints visible, and no overlapping. Stagger end joints 12 inches minimum. Do not stretch sod pieces.
 - c. Lay smooth and align with adjoining grass areas. Place top elevation of sod even with or slightly above adjoining edging, paving, or curbs to allow for settling.
 - d. On slopes exceeding 2 horizontal to 1 vertical, lay sod perpendicular to the slope and secure every row with wooden pegs at maximum of 2 feet on center. Drive pegs flush with soil portion of the sod.
 - e. Water sodded areas immediately after installation, saturating the sod to 3 inches of soil.
 - f. After sod and soil have dried, roll sodded areas to ensure a good bond between sod and soil and to remove minor depressions and irregularities.

E. Maintenance (Seed and Sod)

- 1 All lawn areas shall be kept moist to maximize germination and root establishment. Water shall be applied daily if there is no rain and frequently enough to keep the grass and soil from drying out. The University shall provide the water source. The contractor is responsible for all hoses, sprinklers or other watering devices and he/she shall ensure proper backflow protection on the water source.
- 2 All areas and spots which do not show a prompt catch of grass or signs of browning shall then be reseeded or re-sodded as required until complete coverage is obtained.
- 3 When the average height of the grass is 3 to 4 inches, grass shall be cut to 2 to 3 inches or 1/3 of the grass blade. Any depressions or irregularities in the lawn surface shall be leveled off and reseeded or re-sodded.

- 4 Maintenance shall cease after the third cutting and final acceptance by the University Representative, provided all grass areas are properly established and free of washouts, depressions, bare spots, weeds and large off-color areas. If seeding or sodding is completed in the autumn, the Contractor shall complete the three cuttings in the following spring as required.
- E. Final Inspection and Acceptance:
1. At the end of the maintenance period, an inspection will be made by the University Representative and the Contractor. Any lawn area under this contract that is not in satisfactory condition, as determined by the University Representative, shall be reworked as soon as conditions permit. All reworked lawn areas shall be maintained as previously specified in PART D – MAINTENANCE until final inspection and acceptance occurs.