

Part 6: Exterior Seeding and Sodding

Contents

1.0 General Conditions.....	1	5.0 Seeding: Products and Procedures.....	4
1.1 Scope of Work	1	5.1 Scope of Work	4
1.2 Submittals	1	5.2 Related Work	4
1.3 Soil Testing.....	1	5.3 Products	4
1.4 Workmanship.....	1	5.4 Installation Procedures for Seed	5
2.0 Products.....	1	5.5 Cleanup	6
2.1 Quality Assurance.....	1	5.6 Acceptance.....	6
2.2 Organic Matter	1	5.7 Maintenance	6
2.3 Topsoil.....	1	5.8 Guarantee	6
2.4 Fertilizer.....	1	5.9 Disclaimer	6
2.5 Lime.....	2	6.0 Crown Vetch	6
3.0 Soil Preparation	2		
3.1 Subgrade Soil Preparation	2		
3.2 Final Grade Soil Preparation With Compost.....	2		
3.3 Final Grade Preparation With Topsoil	2		
3.4 Finish Grade.....	2		
4.0 Sod: Products and Procedures.....	3		
4.1 Scope of Work	3		
4.2 Products	3		
4.3 Installation Procedures for Sod	3		
4.4 Acceptance.....	4		
4.5 Maintenance	4		
4.6 Disclaimer	4		
4.7 Guarantee	4		

1.0 General Conditions

1.1 Scope of Work

- A. The landscape contractor shall furnish all labor, material, and equipment required to complete the work described herein in strict accordance with the drawings and/or terms of the contract. All previously established grades shall be in conformance with the drawings and/or other specifications.
- B. It is recommended that the landscape contractor have Landscape Industry Certified Technicians—Exterior on staff and performing the work whenever possible.
- C. The landscape contractor shall be familiar with the project premises and how the existing conditions will affect his/her work.

1.2 Submittals

When requested by the owner or owner’s representative, samples of all materials shall be submitted to the owner’s designated representative for approval.

1.3 Soil Testing

A soil test shall be made to determine soil texture, pH, magnesium, phosphorus and potassium. Additional tests for soluble salts and organic matter should also be made. Soil tests shall be conducted by a state laboratory or recognized commercial laboratory. The landscape contractor shall perform one (1) soil test using a representative sample of on-site soils. If existing soil has been undisturbed and is suitable as determined by soil test, no additional amendments are required. If the owner does not accept the soil test results as submitted by the landscape contractor, the owner is accepting full responsibility and thereby voids the landscape contractor’s guarantee. Adjustments should be made based on soil test results.

Acceptable Soil Test Results

pH range	Bluegrass 6.0–7.0, Fescues 5.5–7.0
Organic matter	>1.5%
Magnesium - Mg	35 pounds per acre
Phosphorus - P ₂ O ₅	100 pounds per acre
Potassium - K ₂ O	85 pounds per acre
Soluble salts	not to exceed 900 ppm

Refer to *Landscape Specification Guidelines Part 7: Soils*, section 1.7 (Soil Testing) to determine how to raise and lower pH.

1.4 Workmanship

- A. During sodding/seeding, all areas shall be kept neat and clean and precautions shall be taken to avoid damage to existing plants, turf and structures.

- B. Upon completion, all debris and waste material resulting from sodding/seeding operations shall be removed from the project and the area cleaned up.
- C. Any damaged areas caused by the landscape contractor shall be restored to their original condition.

2.0 Products

2.1 Quality Assurance

Manufacturers' certified analyses shall accompany packaged standard products.

2.2 Organic Matter

- A. Sedge peat: Decomposed peat containing no identifiable fibers.
- B. Leaf compost: Screened and free of trash.
- C. Composted sewage sludge: Approved, screened, polymer-dewatered sewage sludge with a pH of 6.2 to 7.2.
- D. MSW (municipal solid waste) compost with pH of 6.2 to 7.2 that is screened and contains less than 1% man-made materials.

2.3 Topsoil

- A. Topsoil shall meet acceptable soil test levels as specified in the Soils Specification. A certificate of soil test analysis must be submitted to the landscape architect for approval before any topsoil is delivered to the project.
- B. Topsoil installed on grade shall attempt to match existing soil texture, except for situations where clay subsoil exists. Where clay subsoil exists, use loam or silt loam topsoils.
- C. Topsoil shall be free of stones, lumps, plants, roots, and other debris over 1 1/2". Topsoil must also be free of plants or plant parts of Bermuda grass, Quack grass, Johnson grass, Mugwort, Nutsedge, poison ivy, Canada thistle, or others as specified.
- D. Topsoil shall not contain toxic substances harmful to plant growth (e.g., pesticide residues).

2.4 Fertilizer

All fertilizers shall be uniform in composition, free flowing, and suitable for application with approved equipment. Fertilizers shall be delivered to the site fully labeled according to applicable state fertilizer laws and shall bear the name, trade name, or trademark and warranty of the producer. Applications shall be determined by soil test recommendations.

2.5 Lime

Lime material shall be ground or pulverized limestone that contains at least 50% total oxides (i.e., calcium oxide plus magnesium oxide). Limestone shall be ground to a fineness such that at least 50% will pass through a 100-mesh sieve and 98 to 100% will pass through a 20-mesh sieve. Granular or pelletized lime may be used, but it must follow the same specifications as above prior to being granulated or pelletized. Applications shall be determined by soil test recommendations.

3.0 Soil Preparation

3.1 Subgrade Soil Preparation

- A. General conditions: Work shall proceed only after rough grading has been completed and the subgrade is within 2/10 of 1' (i.e., 2.4") from final subgrade. If the graded area develops volunteer weed growth, the growth must be eliminated at the expense of the general contractor or the owner.
- B. Grades: Grades that have been previously established in conformance with the drawings and/or other applicable specifications shall be maintained in a true and even grade.
- C. Liming: Limestone shall be spread based on soil test recommendations. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with an expanded tillage operation, as described in paragraph D, which follows.
- D. Tilling (Scarifying): After the areas have been brought to grade, the subgrade shall be loosened by disking or scarifying to a depth of 2" to 4". This is especially critical when topsoil is to be added.

3.2 Final Grade Soil Preparation With Compost

This specification applies only when compost is used to amend existing subsoil to make it suitable for sod or for sowing seed. The use of compost shall be noted in the contract agreement.

- A. General conditions: The areas to which these specifications apply shall be clearly indicated on the drawings or as otherwise specified. The landscape contractor shall furnish equipment, labor, and materials necessary for preparing the specified areas. Work shall proceed only after the subgrade is within 1" of final grade.
- B. Grades: Grades in the specified area shall conform to the drawings and/or other applicable specifications and shall be maintained true and even.
- C. Applying compost: The compost shall be uniformly applied at a level not to exceed 4 cubic yards per 1000

square feet, 1" thick layer. This level of application will provide adequate nutrients to supply the needs of the plants through the first growing seasons.

- D. Tilling: As soon as the compost has been applied, it shall be incorporated into the top 4" to 6" of soil by either roto-tilling or cross disking.

3.3 Final Grade Preparation With Topsoil

- A. General conditions: The areas to which these specifications apply shall be clearly indicated on the drawings or as otherwise specified. The landscape contractor shall furnish equipment, labor, and materials necessary for preparing the specified areas. Work shall proceed upon acceptance of the subgrade by the landscape architect or the owner.
- B. Grades: Grades in the specified area shall conform to the drawings and/or other applicable specifications and shall be maintained true and even.
- C. Materials: Topsoil shall be as stated in section 2.3 (Topsoil) in this guideline. Topsoil on the existing site may be used but must meet standards.
- D. Topsoil installation: Topsoil shall be uniformly distributed on the designated areas to meet final grades. Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets. Topsoil shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed sodding or seeding.
- E. Fertilizer: Fertilizer application rates shall be determined by topsoil test recommendations.
- F. Liming: Liming shall be based on topsoil test recommendations.
- G. Tilling: If 3" or less of topsoil is added to the site, it must be incorporated into the subgrade by tilling. All amendments must be incorporated to at least a 3" depth.

3.4 Finish Grade

- A. General conditions: The landscape contractor shall proceed only after the topsoil or subsoil has been prepared uniformly in the designated areas to within 1/4 of 1". Any undulations or irregularities in the surface resulting from fertilizing, liming, tilling, or other causes shall be leveled prior to sodding or seeding.

- B. Prior to sodding or seeding, the surface shall be cleared of all trash, debris, and stones larger than 1 1/2" in diameter or length, and of all roots, brush, wire, grade stakes and other objects that would interfere with sodding or seeding.

4.0 Sod: Products and Procedures

4.1 Scope of Work

The landscape contractor shall furnish all labor, material, and equipment required to complete the work described herein in strict accordance with the drawings and/or terms of the contract. All previously established grades shall be in conformance with the drawings and/or other specifications.

4.2 Products

A. Classes of MD/VA turfgrass sod:

1. State-certified sod (labeled)

Certified turfgrass sod is a superior product grown from an approved mixture of certified seed. The mixture is made up of individual varieties that have been evaluated for at least five years at up to eight different locations throughout Maryland and Virginia and are readily available in certified form. The mixture is evaluated, mixed, tagged and sealed under the supervision of the Maryland or Virginia Department of Agriculture. The mixture is planted in fields that have been inspected by the Maryland or Virginia Department of Agriculture and declared free of all noxious weeds prior to any plowing or tillage operations by the Department of Agriculture. The fields are periodically inspected throughout the year to ensure: genetic purity; uniformity in density, color and texture; pleasing appearance; free from all noxious weeds and other crop and weed contaminants; proper mowing height; satisfactory root development; relatively disease, insect, and nematode-free; and numerous other requirements for certification. Once the fields are brought to the desired conditions, the Department of Agriculture issues certification labels that must be permanently attached to each bill of lading or delivery ticket. One label is required by law on each and every load of sod, regardless of size. The purchaser should require a "certified" label upon delivery.

2. State-approved sod (labeled)

"Approved" turfgrass sod follows the exact same procedure as above, except that it may have one controllable broadleaf weed per 1,000 square feet,

the color may be slightly off, or the insect and disease levels may be slightly higher than those allowed for certified sod. The sod must meet published state standards and bear an official Maryland or Virginia "Approved Sod" label on the delivery receipt. The purchaser should require such labels when sod is delivered.

3. Other sod

Turfgrass sod that meets and exceeds the standards of state certified and state approved sod and is approved by the owner or owner's representative.

B. Specifications for sod materials

1. Class and composition: Class of turfgrass sod shall be creeping bentgrass, Kentucky bluegrass, turf-type tall fescue, Bermuda grass, or Zoysiagrass.
2. Thickness of cut: Sod shall be machine cut at a uniform soil thickness of 1/2", plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch.
3. Pad size: Individual pieces of sod shall be cut to the supplier's standard width and length. Maximum allowable deviation from standard widths and lengths shall be 5%. Broken pads and torn or uneven ends will not be acceptable.
4. Strength of sod sections: Under ideal conditions, standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10% of the section. NOTE: Younger tall fescue will not be strong enough to pass this test but is still okay to use.
5. Sod viability: Sod shall not be harvested or transplanted under drought conditions.
6. Time limitations: Under optimal conditions, sod shall be harvested, delivered and installed within a period of 36 hours. Because sod is a perishable commodity, however, if high temperatures and low moisture extremes occur, its viability declines and installation should occur within 24 hours from harvest. Sod not transplanted within this period shall be inspected and approved or rejected by the owner, owner's representative, or general contractor prior to installation.

4.3 Installation Procedures for Sod

- A. Site approval: The landscape contractor shall inspect the site to approve final grading and preparation prior to installing the sod.

- B. Moistening the soil: During periods of high temperature, lightly irrigate the soil immediately prior to laying the sod.
- C. Starter strip: The first row of sod shall be laid in a straight line, with subsequent rows placed parallel to and tightly against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Care shall be exercised to ensure that the sod is not stretched or overlapped and that all joints are butted tightly in order to prevent voids, which would cause air-drying of the roots.
- D. Sloping terrain: On sloping terrain where erosion may be a problem, sod should be installed perpendicular to the slope when possible, with staggered joints and secured by sod staples driven to ground level. If staples remain above ground level during sod establishment, either remove or drive to ground level once sod is rooted.
- E. Watering and rolling: The landscape contractor shall lightly water sod during installation to prevent excessive drying. As sodding is completed in any one section, the entire area shall be rolled. It shall then be thoroughly irrigated so that the underside of the new sod pad and soil immediately below the sod are thoroughly wet. The general contractor shall be responsible for having adequate water available at the site prior to and during sod installation, unless otherwise stated.

4.4 Acceptance

Acceptance of the installed sod shall be made by the general contractor, landscape architect, or owner within 24 hours of completion of an area or section. After acceptance, the owner is responsible for follow-up maintenance.

4.5 Maintenance

- A. Upon acceptance, maintenance becomes the responsibility of the owner unless otherwise specified in the contract.
- B. Watering
 - 1. First week: Sod shall be kept moist at all times. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary and in sufficient quantities to maintain moist soil to a depth of at least 2".
 - 2. Second and subsequent weeks: Water the sod as required maintaining adequate moisture in the upper 4" of soil to promote deep root growth. Once sod is well rooted, less frequent, deep watering should be maintained to encourage

deep root growth. The total should equal the equivalent of at least 1" of water per week. This can be accomplished through a combination of rainfall and irrigation.

C. Mowing

- 1. The first mowing shall be as soon as top growth warrants it. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings.
- 2. Grass height shall be maintained at 2" to 3" for Kentucky bluegrass and 2½" to 3½" for tall fescue.

4.6 Disclaimer

The landscape contractor shall not be held liable for damages incurred to sod caused by deicing compounds, fertilizer, pesticides, other unauthorized chemical applications, vandalism, and/or acts of God.

4.7 Guarantee

The landscape contractor shall guarantee that all installed sod shall be Maryland/Virginia certified or approved sod, or sod that exceeds the standards for state certified and state approved sod, as approved by the owner or owner's representative. All sod shall be uniform in color and reasonably free of visible imperfections at acceptance. The landscape contractor shall guarantee the establishment of the sod, only if adequate watering by the contractor has been approved by the owner.

5.0 Seeding: Products and Procedures

5.1 Scope of Work

The landscape contractor shall furnish all labor, material, and equipment required to complete the work described herein in strict accordance with the drawings and/or terms of the contract. All previously established grades shall be in conformance with the drawings and/or other specifications.

5.2 Related Work

Landscape Specification Guidelines Part 7: Soils, sections 1.7 (Soil Testing) and 3.0 (Soil Preparation).

5.3 Products

- A. Mulching materials
 - 1. Straw shall be free of rot, mildew, and noxious weed seeds and shall be a small grain, such as wheat, barley, or oats.

2. Wood cellulose fiber mulch shall consist of specially prepared cellulose processed into a uniform fibrous physical state. The fiber mulch, including dye, shall contain no germination or growth-inhibiting factors. The mulch material shall be manufactured and processed in such a manner that the cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer, and other additives to form a homogeneous slurry. The mulch shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
3. Wood fiber hydraulic mulch products shall consist of specially prepared wood that has been processed to a uniform fibrous state, and shall be packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment. The wood fibers of wood fiber hydraulic mulch products shall have a length of approximately 0.5" and a diameter of approximately 0.0625". The wood fibers shall be dyed green, or the wood fiber hydraulic mulch product shall be mixed with a dye in a separate operation that will provide appropriate color to aid visual inspection of the material when it is spread. Wood fiber hydraulic mulch products shall have a pH range of pH 4.0 to 8.5, and an ash content that shall not exceed 7% of the product by weight. It shall contain no materials or chemicals in concentrations that inhibit the germination or growth of grasses, forbs, meadow flowers, or other seedlings when they are applied according to the manufacturer's label directions. It shall be capable of remaining in suspension with water under agitation, so that such products shall readily blend with seed, fertilizer, and limestone to form a uniform slurry.
4. Erosion control blankets shall be woven and may contain lightweight plastic netting on one or both sides.

B. Stabilizing materials

1. A mulch-anchoring tool is a tractor-drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2".
2. Cellulose fiber may be used for anchoring straw. The fiber binding shall be applied at a net dry weight of 750 pounds per acre. The cellulose fiber may be mixed with water. The mixture shall contain a maximum of 50 pounds of cellulose fiber per 100 gallons of water, or refer to manufacturer's recommended rates.

3. Wood fiber hydraulic mulch products shall consist of specially prepared wood that has been processed to a uniform fibrous state. The wood fibers of wood fiber hydraulic mulch products shall have a length of approximately 0.5" and a diameter of approximately 0.0625". It shall contain no materials or chemicals in concentrations that inhibit the germination or growth of grasses, forbs, meadow flowers, or other seedlings when they are applied according to the manufacturer's label directions. It shall be capable of remaining in suspension with water under agitation so that such products shall readily blend with seed, fertilizer, and limestone to form a uniform slurry.
4. Liquid mulch binders should be applied more heavily at the edges, where wind catches the mulch.
5. Lightweight plastic netting should be staked over the mulch according to manufacturer's recommendations. It is recommended that stakes be driven to ground level or removed once seed is established.

C. Seed mix

1. Prior to specifying the composition of the certified seed mix or blend and application rates, contact the University of Maryland Extension or refer to www.ipmnet.umd.edu.

5.4 Installation Procedures for Seed

One of the two following methods shall be used for seeding after final soil preparation has been completed. The regular seeding seasons are March 1 to May 15 and August 15 to October 15. Establishment is not guaranteed when the seeding is done out of season. No seeding shall be done on frozen ground or when the temperature is 32° F or lower. Optimum seeding time is late August to mid October.

A. Dry application

1. Seed installation
 - a. Cultipacker seeder: This method applies seed just below soil surface and covers the seed in a single operation. Seed should be applied within the top 1/4" of the soil in two different directions for best results.
 - b. Drop-type/broadcast spreader: Apply seed within the top 1/4" of the soil in two directions for best results. To improve soil/seed contact, use a landscape rake to make one pass over the seed bed.

2. Mulching: Apply mulching material to retain moisture and minimize erosion. Rate for straw: 1/2" to 1" thick layer or 60 to 80 bales per acre. Rate for cellulose fiber: 1,500 pounds per acre.
3. Stabilizing: Stabilize the mulch by using a mulch anchoring tool, cellulose fiber, liquid mulch binders, or mulch netting.

B. Hydro-seeding: Two methods can be used. The first method gives the best results.

1. Water, seed, and fertilizer method: The mixture shall be sprayed on the previously prepared seedbed in the form of an aqueous mixture. All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed.

If the fertilizer is mixed into the slurry, no more than 30 minutes should lapse before it is applied to prevent the fertilizer from burning the seed. Care shall be exercised to ensure uniform coverage.

Straw shall be applied by hand or with a straw blower and stabilized. The same rates and procedures shall be followed as detailed for dry application in A above.

2. Seed, fertilizer, water, and cellulose fiber method: The application procedure for this method is the same as for the first method above. The rate of cellulose fiber is 50 pounds per 100 gallons of water. Follow manufacturer's recommended rates.

5.5 Cleanup

Excess and waste material shall be removed daily. All pavements shall be left broom cleaned, and all damaged areas in existing turf shall be restored to their original condition. Responsibilities should be based on contractual agreements.

5.6 Acceptance

Acceptance of the seed installation shall be made by the general contractor, landscape architect, or owner upon completion of an area or section. After acceptance, the owner is responsible for follow-up maintenance.

5.7 Maintenance

- A. Upon acceptance, maintenance becomes the responsibility of the owner, unless otherwise specified in the contract.
- B. Watering: During the first two to three weeks, the seed shall be kept moist at all times to allow for germination. In the absence of adequate rainfall, light, frequent watering shall be performed to keep the seedbed moist.

5.8 Guarantee

The landscape contractor shall guarantee germination for seed installed during the regular season, provided that watering is performed by the owner.

5.9 Disclaimer

The landscape contractor shall not be held liable for damages incurred to seed caused by deicing compounds, fertilizer, pesticides, other unauthorized chemical applications, vandalism and/or acts of God. Any need for overseeding or regrading attributed to this shall be an addition to the contract.

6.0 Crown Vetch

Please refer to the Maryland Seeding Association Guideline Specifications for information about procedures for using Crown Vetch at www.marylandseeding.org.