



ROYAL OAK FARM BLUEBLOOD™ TURF ROOTZONE MIX  
Section 02\_\_\_\_\_

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of the Contract and Division-1 Specifications sections, apply to this section.

1.2 WORK IN THIS SECTION

- A. Section includes:
  - 1. Soil amendments.
  - 2. Soil preparation.
  - 3. Preparation and finish grading of turf and lawn areas.
- B. Substitutions: Substitute products will be considered only under the terms and conditions of Section \_\_\_\_\_.

1.3 DEFINITIONS

- A. Compost: Shall be a mature and stable humic soil amendment produced through the aerobic controlled decomposition of organic materials, shall have been produced at a facility permitted by the Virginia Department of Environmental Quality, and shall be tested in accordance with the U.S. Composting Council's (USCC) Seal of Testing Assurance (STA) Program.
- B. Turf Rootzone Mix: Soil produced by homogeneously blending mineral soils and/or sand with stable, mature compost tested in accordance with the USCC STA Program to produce a topsoil or planting soil sufficient to establish and support the growth of permanent turfgrass vegetation
- C. Finished Grade: Elevation of the finished surface of the planting soil
- D. Subgrade: Surface or elevation of subsoil remaining after completing excavations, or top surface of a fill or backfill immediately beneath planting soil

1.4 RELATED WORK IN OTHER SECTIONS

- A. The following Sections contain requirements that may relate to this Section:
  - 1. Section 02\_\_\_\_ - Earthwork
  - 2. Section 02\_\_\_\_ - Irrigation
  - 3. Section 02\_\_\_\_ - Trees, Plants, Groundcovers
  - 4. Section 02\_\_\_\_ - Seeding

1.5 REFERENCES

- A. United States Department of Agriculture (USDA) Soil Texture System of Classification
- B. U.S. Composting Council, Test Methods for the Examination of Compost and Composting (TMECC)
- C. American Society for Testing and Materials (ASTM), Test Method No. D-2434, "Standard Test Method for Permeability of Granular Soils (Constant Head)"



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- D. ASTM Test Method F1632-95, "Standard Test Method for Particle Size Analysis and Sand Shape Grading of Golf Course Putting Green and Sports Field Rootzone Mixes"
- E. ASTM Test Method F1647-98, "Standard Test Method for Organic Matter Content of Putting Green and Sports Turf Rootzone Mixes"
- F. ASTM Test Method F1815-97, "Standard Test Method for Saturated Hydraulic Conductivity, Water Retention, Porosity, Particle Density, and Bulk Density of Putting Green and Sports Turf Rootzone Mixes"
- G. ASTM Test Method C136-96a, "Standard Test Method for C136-96a Sieve Analysis of Fine and Coarse Aggregates"
- H. ASTM Test Method D854- 98, "Standard Test Method for D854-92e1 Specific Gravity of Soils"
- I. ASTM Test Method D2974-87, "Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils"
- J. ASTM Test Method C-88-90, "Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate"
- K. ASTM Test Method D4972- 95a, "Standard Test Method for pH of Soils"
- L. U.S. Golf Association (USGA) "Recommendations For A Method Of Putting Green Construction"

#### 1.6 SUBMITTALS

- A. Comply with requirements of this Section, Project Manual requirements and Conditions of the Contract.
- B. The following submittals are required for portions of the Work specified in this section.
  - 1. Compost Technical Data Sheet: Submittal prepared by an independent laboratory certified by the USCC to analyze the compost used to create a manufactured soil or a planting soil in accordance with the USCC's Test Methods for the Examination of Compost and Composting (TMECC); such analysis must be dated no earlier than six (6) months from the date of submittal
  - 2. Materials Qualification Test: Submittal prepared by an independent soils testing laboratory to indicate the proposed materials comply with contract document requirements.
  - 3. Samples: Submit samples of all topsoil products proposed to be used. Include a list of sources. Samples shall be submitted in one-gallon containers.
- C. At the time of Post-Construction Inspection, furnish copies of material verifications such as load tickets, invoices, sales slips, test results and similar items as specified.

#### 1.7 PROJECT CONDITIONS

- A. All areas to be improved shall be inspected by the Contractor before starting work. Report any defects such as incorrect grading, or drainage problems, to the Owner's Representative before beginning work. The commencement of work by the Contractor indicates his acceptance of the areas to be improved, and acceptance of full responsibility for the work of this section.



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- B. Protect existing utilities, paving, walls, and any other facilities from damages caused by landscaping operations.

1.8 QUALITY ASSURANCE

- A. Qualifications of Contractor: The Contractor shall be active and experienced in work of the type specified, and upon request by the Owner and/or Owner's Representative, be able to show evidence of successful completion of projects of similar scope.
  - 1. Field supervision: The Contractor shall maintain an experienced full-time supervisor on the Project site during those times that work under this section is being performed.
- B. Regulatory Requirements: Obtain and pay for all permits and testing related to the work of this section.
- C. Pre-Grading Inspection: In conformance with the project conditions specified herein, meet with the Owner's Representative to discuss and verify requirements, schedule, and proposed soil preparation methods.

1.9 GUARANTEE

- A. Guarantee: Guarantee materials and workmanship for a period of one-year following Owner's final acceptance.

1.10 SEQUENCING AND SCHEDULING

- A. Coordinate work of other trades specified elsewhere.
- B. Do not perform landscaping work in areas subject to the subsequent work of other sections, unless approved otherwise.
- C. Perform work in accordance with the approved schedule. If a schedule delay greater than three days occurs, immediately revise and resubmit schedule to reflect each schedule delay.

1.11 MAINTENANCE

- A. Maintain the work as specified in this section until final acceptance of the work.

PART 2 - PRODUCTS

2.1 COMPOST

- A. Composted material shall be Royal Oak Farm Blueblood™ Garden Compost or equivalent, and must be in compliance with VA Department of Environmental Quality's specifications, which appear in 9 VAC 20-80-330; plus the following additional requirements.
- B. Additional Requirements
  - 1. The compost must be registered with the USCC STA program.
  - 2. The carbon to nitrogen ratio of the compost shall be below 25:1.



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3. The compost shall have an organic matter content of 35% to 65%% as determined by “loss on ignition” test method.
4. Submit one-gallon sample, source, and Compost Technical Data Sheet from the supplier to the Owner’s Representative for approval prior to installation.

2.2 TURF ROOTZONE MIX

- A. A mixture of compost, meeting requirements of Section 2.1 above, and sand or sandy loam per USDA soil texture classification. The mixture shall consist of 55% - 70% sand, 15% - 35% silt and 5% - 15% clay, and shall contain between 3% and 5% organic matter for turf areas. The mixture shall be free of weeds, herbicides, petroleum-based materials, any other deleterious materials, rocks, and debris, and shall be Royal Oak Farm Blueblood™ Turf Rootzone Mix, or equivalent.
- B. The rootzone mix shall have a pH of between 5.5 and 8.0, a minimum magnesium content of 35 lbs/acre, a minimum phosphorus content of 100 lbs/acre, and a minimum potassium content of 85 lbs/acre.
- C. The rootzone mix shall have the following physical properties:
  1. Total Porosity = 35% - 55%
  2. Air-Filled Porosity = 15% - 30%
  3. Saturated Hydraulic Conductivity = minimum of 6"/hour
- D. Submit one-gallon sample, source, and letter of certification from the supplier to the Owner and/or Owner’s Representative for approval prior to installation.

2.3 SAND

- A. Coarsely graded sand meeting the specifications for ASTM C-33 Fine Aggregate with a Fineness Modulus greater than 2.75 shall be selected.
  1. Sands shall be clean, sharp natural sands. High limestone sands should not be used in manufactured topsoil formulations intended for use with ericaceous plants.
  2. Sand used should meet the following particle size distribution:

Category	Particle Size	Units	Specifications
Very coarse sand – fine gravel	1.0-3.4 mm	%	< 10
Medium – coarse sand	0.25-1.0 mm	%	≥ 60
Fine sand	0.15-0.25 mm	%	< 20
Very fine sand	0.05-0.15 mm	%	< 5
Silt	0.002-0.05 mm	%	< 5
Clay	< 0.002 mm	%	< 3
Total fines	0.002-0.15 mm	%	< 10



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### PART 3 – EXECUTION

#### 3.1 EXAMINATION

- A. Examine areas and conditions where work is to be performed. Do not proceed until unsatisfactory conditions have been corrected.
  - 1. Verify final subgrade has been established.
  - 2. Verify topsoil meets requirements of this Section and soils testing lab reports have been received and approved by Owner's Representative.
  - 3. As applicable, verify that compaction requirements in Section 02\_\_\_\_\_ have not been exceeded.
  - 4. Notify the Owner's Representative, in writing, of any conditions which might prevent satisfactory completion.

#### 3.2 MIXTURE STORAGE, PLACEMENT PREPARATION AND PLACEMENT

- A. Storage
  - 1. Isolate Royal Oak Farm Blueblood™ Turf Rootzone Mix, or equivalent, from other soils. Prohibit vehicular and pedestrian traffic over stockpiled soil. Protect soil from air and water erosion.
  - 2. Stockpile Royal Oak Farm Blueblood™ Turf Rootzone Mix, or equivalent, generally where indicated and in such a manner that natural drainage is not obstructed and that no off-site sediment transmission will result. Place stockpiles with a maximum 2:1 side slope.
  - 3. Place Filtrexx SiltSoxx™, or equivalent, around Royal Oak Farm Blueblood™ Turf Rootzone Mix, or equivalent, stockpiles as sediment control devices.
- B. Mixture Placement Preparation
  - 1. Confirm rough grading of subsoil and report deficiencies.
  - 2. Establish indicated and needed erosion and sediment control items such as diversions, berms, dikes, waterways, sediment basins, etc.
  - 3. Remove any debris and rocks (greater than 1" diameter) from areas where turf rootzone mixture is to be emplaced, including any excess concrete and concrete spoils adjacent to concrete curbs, gutters, sidewalks, etc.
  - 4. Eliminate uneven areas and low spots; maintain indicated grades and make changes in grade gradual by blending slopes into more level areas.
  - 5. After the areas to be treated have been brought to inferred subgrade elevations and immediately prior to dumping and spreading Royal Oak Farm Blueblood™ Turf Rootzone Mix, or equivalent, loosen and condition the subgrade by power rototilling to a depth of at least 6 inches to ensure removal of gross subgrade debris and bonding of the topsoil and subsoil; no substitute operations acceptable.
  - 6. After rototilling and prior to placement of Royal Oak Farm Blueblood™ Turf Rootzone Mix, or equivalent, scalp or otherwise remove all visible stones, clods of hard earth, roots, plant parts, stumps, sticks, weeds,



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demolition or construction debris, or any other extraneous non-earth material in excess of 1.0 inches in size.

C. Mixture Placement

1. Do not place Royal Oak Farm Blueblood™ Turf Rootzone Mix, or equivalent, more than 2 weeks prior to planned commencement of project planting operations.
2. Do not place mixture in a wet or muddy condition, when subgrade is excessively wet, or in condition that may otherwise be detrimental to subsequent work.
3. Spread a 12-inch layer of Royal Oak Farm Blueblood™ Turf Rootzone Mix, or equivalent, over the area to be amended for turfgrasses and gently firm the mixture into the existing soil to create a uniform 12 inch deep modified root zone.
4. Correct irregularities in the surface resulting from placement of the rootzone mix or other operations so as to prevent formation of depressions or water pockets.
5. Avoid excessive compaction of rootzone mix. Compaction should only be sufficient so that it will show a shallow heel mark when walked upon and will allow water to penetrate at a rate of one inch per hour. Over compaction will require additional rototilling, as directed by the Owner's Representative.
6. If project planting operations will be delayed for more than two weeks from the end of rootzone mix placement operations, protect the mixture from erosion with a minimum 1 inch thick blanket of compost distributed evenly over the entire surface of the emplaced soil.

END OF SECTION