32 92 19 – Seeding

1. Introduction

   A. This Construction & Design standard covers seeding and hydro-seeding guidelines to be used in conjunction with other related sections listed below:

      31 25 00  Erosion and Sedimentation Controls
      32 01 90  Operation and Maintenance of Planting
      32 01 90  Operation and Maintenance of Planting (Grasses)
      32 01 90.13  Fertilizing
      32 01 90.26  Watering
      32 80 00  Irrigation
      32 91 00  Planting Preparation
      32 91 13  Soil Preparation
      32 91 13.26  Mulch
      32 92 23  Sodding
      32 92 43  Trees

   B. This sections does not apply to athletic fields.

   C. Designers should coordinate with Duke University Landscape Services (LS) to coordinate selection and execution requirements for Seeding.

2. References

   A. AOSA – Association of Official Seed Analysts

3. Definitions:

   A. Backfill: Earth used to replace or the act of replacing earth in an excavation.

   B. Finish Grade: Elevation of finished surface of topsoil following natural settling, light rolling or light compaction activities.

   C. Manufactured Soil: Soil produced off site by homogeneously blending mineral soils or sand with stabilized organic soil amendments.

   D. Sub-Grade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath the topsoil.

   E. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

   F. Top Soil: Imported or native soil as specified.
G. Weeds: Any undesirable plants growing in an area.

H. Installer: The firm performing the seeding work.

4. Design Standards

A. Seed

1. Grass seed shall be fresh, clean, dry, new-crop seed complying with AOSA’s Journal of Seed Technology; “Rules for Testing Seeds” for purity and germination tolerances.

2. General Lawn Seed Mix shall be state-certified seed of grass species, with not less than 85 percent germination, not less than 98 percent pure seed, and not more than .5 percent weed seed.

   a. Seed mixes to be specified in the project.

B. Planting Accessories

1. Selective Herbicides must be EPA registered and approved, of type recommended by manufacturer for application.

2. Mychorrhizae Inoculant: Provide one of the following, or similar with approval from owner.

   a. Landscape Innoculant by Bio-Organics.
   b. MycoGrown for Lawns by Fungi Perfecti.
   c. Mycor Root Building by GreenSense.
   d. Turf Saver by Plant Health Care.

3. Water shall be clean, fresh and free of material harmful to plant growth.

C. Fertilizer

1. See Fertilizing Section 32 01 90.13.

D. Maintenance

1. See Operation and Maintenance of Planting (Grasses) Section 32 01 90.

E. Mulch


F. Erosion Control Materials

1. See Erosion and Sedimentation Controls Section 31 25 00.
5. **Documentation and Review Requirements**

   A. **Submittals**

      1. Provide product data for each type of product utilized on site, including MSDS, name brand, active chemical, and content analysis. Also provide:
         a. Fertilizer: Nitrogen, phosphorous and potassium ratio.

      2. Indicate seeding method and equipment proposed to be used.

      3. Certification of Grass Seed from seed vendor for each grass seed or mixture:
         a. The botanical name, common name and percentage by weight of each species and variety.
         b. Percentage of purity, germination and weed seed.
         c. The year of production, date of packaging, date of expiration.
         d. Vendor, source, and contact information for each supplier.

      4. Certification of Hydoseed from seed vendor:
         a. All documentation required of for Grass Seed.
         b. Slurry contents

      5. Provide qualifications of the installer and installer’s project manager and superintendent.

      6. Indicate planting schedule including anticipated seeding dates.

6. **Installation and Performance Requirements**

   A. **Quality Assurance**

      1. Installer Qualifications: A qualified lawn installer with a minimum of five years of experience of work of this type, scale and complexity, whose work has resulted in successful lawn establishment.

      2. The Installer shall have an employee who holds a four year bachelor degree in the field of landscape contracting, landscape management, agronomy, landscape architecture or horticulture and is available to the project.

      3. The Installer’s project superintendent, at a minimum, shall hold a minimum of a two year degree in the field of landscape contracting, landscape management,
agronomy, landscape architecture or horticulture and be present on the project site a minimum of 75% of the time the installer’s crew is present on the site

4. The worked described in this section, as well as in planting, grading and irrigation, shall be contracted to a single landscape contractor.

5. The pre-installation meeting shall be at the project site or another site designated by the owner.

B. Regulatory Requirements

1. All personnel shall comply with regulatory agencies and authorities having jurisdiction for all chemical applications.

2. MSDS sheets shall be onsite, readily available, and easily accessible for all chemicals in use.

3. All chemical applicators shall have a current and valid North Carolina pesticide applicators license.

C. Delivery, Storage and Handling

1. Deliver seed in original, sealed, labeled and undamaged containers. Retain all labels and/or containers through substantial completion date.

2. Deliver chemicals in original, sealed, waterproof containers labeled with chemical analysis and manufacturer. Retain all labels and/or containers through substantial completion date.

D. Project Conditions

1. Seeding is restricted to one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance to date of turn over.
   a. Fescue: August 15th to October 15th.
   b. Bermuda: April 15th to June 15th.

2. Proceed with seeding only when existing and forecasted weather conditions permits.

E. Coordination

1. Coordinate work of this section with installation of underground utilities, irrigation system and plant materials.

2. Coordinate as required to determine who is controlling the watering rates and times and ensure rates are appropriate for work of this section and do not harm any other plant material.
F. Examination

1. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance.
   a. Do not seed when soil is wet and unable to support load of equipment.
   b. Verify that prepared topsoil is ready to receive work of this section.
   c. Verify that required utilities and irrigation are available and ready for use.

2. After installation, proof roll topsoil as required to ensure settling is minimized while ensuring optimum growing conditions for the plant materials.

3. Proceed with installation only after unsatisfactory conditions have been corrected.

G. Preparation

1. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs and plantings from damage caused by planting operations.
   a. Protect adjacent and adjoining areas from hydro-seeding and hydro-mulching overspray.
   b. Protect grade stakes set by others until directed to remove them.

2. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create a muddy condition.

3. Apply mycorrhizal inoculant at the rate of .5 pound per 1000 square feet of seed. Apply per manufacturers recommendations.

H. Seeding

1. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
   a. Do not use the same machine to apply fertilizer.
   b. Do not use wet seed, seed that is moldy or seed that is otherwise damaged.
   c. Do not seed against existing trees.
   d. Only seed to the outside edges of mulch areas or planting saucers.

2. Sow seed at the following rates
   a. Fescue: 8 lbs. per 1000 square feet.
b. Bermuda: 5 lbs. per 1000 square feet.

3. Rake seed lightly into top 1/8 inch of soil, roll lightly with roller not exceeding 90 lbs., and water with a fine spray.

4. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets and 1:6 with erosion control fiber, elsewhere as indicated, installed and stapled according to manufacturer’s written instructions using only biodegradable materials.

5. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons per acre to form a continuous blanket 1 1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
   a. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

I. Hydro-seeding

1. Upon agreement between contractor and owner, hydro-seeding may be used in lieu of manual fertilizing, seeding and mulching.

2. Hydro-seeding: mix specified seed, fertilizer and fiber mulch in water, using equipment specifically designed for hydro-seed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

3. Apply slurry uniformly to all areas to be seeded in a one step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500 lbs. per acre dry weight, and seed component is deposited at not less than the specified seed sowing rate.

J. Lawn Renovation

1. Renovate existing lawn in areas indicated on drawings or where existing lawns have been damaged by construction activities.
   a. Reestablish lawn where settlement or washouts occur where minor regrading is required.
   b. Provide new top soil as required.

2. Remove sod and vegetation from diseased or unsatisfactory lawn areas. Do not bury in soil.

3. Remove topsoil that contains foreign materials resulting from Contractor’s operations, including oil drippings, fuel spills, stone, gravel, debris or other materials. Replace with new topsoil.

4. Where substantial lawn remains, mow, dethatch, core aerate, and rake existing lawn.
5. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required, ensuring no pre-emergent chemicals are used.

6. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.

7. Apply soil amendments and initial fertilizers required for establishing new lawns, and mix thoroughly into top 4 inches of existing soil. Provide new planting soil to fill low spots and meet finish grades.

8. Surface apply fertilizer to areas of lawn to remain.

9. Apply seed and protect with straw mulch or erosion control fabric as required for new lawn.

10. Water newly planted areas as required.

K. Satisfactory Lawns

1. Lawn installations shall meet the following criteria as determined by the owner during final inspection and at acceptance.

   a. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 95 percent over any 10 square feet and bare spots not exceeding 5 by 5 inches, with finished grass height 2 inches for Bermuda and 4 inches for Fescue.

2. Use specified materials to reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

3. If satisfactory lawn has not been established at final inspection, another inspection shall be made upon written contractor requires that the lawn is ready for inspection, but no earlier than 60 calendar days and no later than 90 days.

L. Clean Up and Protection

1. Promptly remove soil and debris, created by lawn work, from paved and hardscaped areas. Clean wheels of vehicles before leaving site to avoid racking soil onto roads, walks, or other paved areas.

2. Remove non-biodegradable erosion control measures after grass establishment period.

3. Allow only vehicles and equipment required to perform and maintain work of this section onto completed lawn areas.
7. **As-Built Requirements**

   A. Refer to 32 01 90 Operation and Maintenance of Planting (Grasses) for more information regarding the maintenance during and after turnover.