

SECTION 32 92 19
SEEDING

PART 1- GENERAL

1.1 RELATED DOCUMENTS

- A. Drawing and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.
- B. Furnish all labor, materials and equipment necessary to complete all seeded lawns as shown and specified. Includes all areas within Contract limits where building and paving do not occur, unless indicated otherwise.

1.2 SUMMARY

- A. Areas of lawns are shown on drawings.
- B. Types of work required include but are not limited to the following:
 - 1. Fine grading and preparing of lawn areas.
 - 2. Furnishing and applying new topsoil.
 - 3. Furnishing and applying soil amendments.
 - 4. Furnishing and applying fertilizers.
 - 5. Seeding new lawn areas.
 - 6. Reconditioning existing lawn areas.
 - 7. Replanting unsatisfactory or damaged lawns.
- C. Refer to earthwork sections in Division 31 for requirements of general excavation, filling, and grading in areas to receive lawns and grasses.

1.3 SUBMITTALS

- A. Certification of Grass Seed: Submit seed vendor'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. Delivery Storage and Handling: Deliver seed and fertilizer materials in original unopened containers, showing weight, analysis and name of manufacturer. Store in a manner to prevent wetting and deterioration.
- C. Topsoil Analysis Report: Submit soil analysis report for proposed new topsoil.
 - 1. Before delivery of topsoil, furnish Landscape Architect with a written statement giving location of properties from which topsoil is to be obtained, names and addresses of owners, depth to be stripped, and crops grown during the past 2 years.

1.4 JOB CONDITIONS

- A. Planting Time: Sow lawn seed only during normal planting seasons for each type of lawn work required. Maintain from date of substantial completion.

1.5 PROJECT CONDITIONS

- A. Work notification: Notify Landscape Architect at least 7 working days prior to start of seeding operations.
- B. Protect existing utilities, paving, and other facilities from damage caused by seeding operations.
- C. Perform seeding work only after planting and other work affecting ground surface has been completed.
- D. Restrict traffic from lawn areas until grass is established. Erect signs and barriers as required.
- E. Provide hose and lawn watering equipment as required.

1.06 SEEDING AND MULCHING

- A. Time of Seeding
 - 1. Seed immediately after preparation of seed bed. Seeding shall be done between April 1 and June 1 or between August 15 and October 15. When delays in operations carry the work beyond the seasons specified, or when conditions of high winds (winds that exceed 5 mph velocity), drought, excessive moisture or ice are such that satisfactory results are not likely to be obtained at any stage of the work, the work will stop and it shall be resumed only when the desired results are likely to be obtained or when approved corrective measures and procedures are adopted.

1.7 SPECIAL PROJECT WARRANTY

- A. Warranty lawns through specified maintenance period and until final acceptance.

PART 2 - MATERIALS

2.1 NEW TOPSOIL

- A. Provide topsoil that is fertile, friable, naturally loamy, surface soil; reasonably free of subsoil clay lumps, brush weeds, and other litter; and free of roots, stumps, stones larger than 1 inch in any dimension, and other extraneous or toxic matter harmful to plant growth.
- B. Obtain topsoil from local sources or from areas having similar soil characteristics to that found

at site of work. Obtain topsoil from naturally well-drained sites where topsoil occurs at least 4 inches deep; do not obtain from bogs or marshes.

2.2 SOIL AMENDMENTS

- A. Lime: Natural limestone containing at least 85 percent calcium carbonate ground to such fineness that at least 90 percent passes a 10-mesh sieve and at least 50 percent passes a 100-mesh sieve.
 - 1. Provide lime in form of dolomitic limestone.
- B. Peat Humus: Finely divided or granular texture and with pH of 6.0 to 7.5 composed of moss peat (other than sphagnum), or peat humus, or reed-sedge peat.

2.3 SULPHUR OR IRON SULPHATE

- A. In dry powder form.

2.4 FERTILIZER

- A. Bonemeal: Commercial raw bonemeal, finely ground and with minimum analysis of 4 percent nitrogen and 20 percent phosphoric acid.
- B. Commercial Fertilizer:
 - 1. Starter fertilizer containing 20% nitrogen, 26% phosphoric acid, and 6% potash by weight, or similar approved composition.
 - 2. Top dressing fertilizer containing 31% nitrogen, 3% phosphoric acid, and 10% potash by weight or similar approved composition.

2.5 GRASS MATERIALS

- A. Grass seed: Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide seed of grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed as specified.
- B. Seed Mixture:
 - 1. Seed mixture shall be a blend of the following: 80-90% Festuca Arundinacea-Tall Fescue, 10-20% Poa Pratensis L-Kentucky Bluegrass.
 - 2. Seed mixture shall be mixed by an approved method.
 - 3. Seed mixture shall be tested to minimum percentages of purity and germination. Poaannua, bent grass and noxious weed seed free.
 - 4. Minimum purity shall be 98%. Minimum germination rate shall be 85% the application rate shall be 8 lbs. per 1000 sq. ft.

2.6 MULCHES

A. Conventional Seeding

1. Straw mulch: Clean, oat or wheat straw well seasoned before bailing, free from mature seed-bearing stalks or roots of prohibited or noxious weeds.
2. Water: Free of substances harmful to seed growth. Hoses or other methods of transportation furnished by Contractor.

PART 3 - EXECUTION

3.1 SOIL PREPARATION

- A. Limit preparation to areas that will be seeded in the immediate future.
- B. Loosen subgrade to a minimum depth of 4 inches. Remove stones bigger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter.
- C. Clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful or toxic to plant growth.
- D. Mix soil amendments and fertilizers with topsoil at rates specified. Topsoil from on-site and off-site sources shall have an acidity range of PH 5.0 to 7.0 and shall contain not less than 5 percent organic matter as determined by loss of ignition of moisture-free samples dried at 100 degrees C. Delay mixing of fertilizer if planting will not follow placing of topsoil mixture within a few days. Either mix soil before spreading or apply soil amendments on surface of spread topsoil and mix thoroughly into top 4 inches of topsoil before planting.
 1. Where topsoil pH is below 5.0, limestone shall be added at a rate of 1-1/2 lbs. per cu. yd. of topsoil to raise the pH value one full point.
 2. Where topsoil pH is above 7.0, sulfur or iron sulphate shall be added at a rate of 1.6 lbs. or 3.2 lbs. respectively per cu. yd. of topsoil to lower the pH value one and one half points.
 3. Mix lime with dry soil before mixing in fertilizer.
 4. Apply phosphoric acid fertilize (other than that constituting a portion of complete fertilizers) directly to subgrade before tilling.
- E. Spread topsoil mixture to depth required to meet thickness, grades, and elevations shown, after light rolling and natural settlement. Do not spread if material or subgrade is frozen.
 1. Place approximately 1/2 of total amount of topsoil mixture required. Work into top of loosened subgrade to create a transition layer, and then place remainder of topsoil mixture.
- F. Preparation of Unchanged Grades: Where lawns are to be planted in areas that have not been altered or disturbed by excavating, grading, or stripping operations, prepare soil for lawn and grass planting as follows: Till to a depth of at least 6 inches. Apply soil amendments and initial fertilizers as specified and mix thoroughly into top 4 inches of soil. Remove high areas and fill in depressions; till soil to a homogeneous mixture of fine texture, free of lumps, clods, stones, roots, and other extraneous matter.
 1. Before preparation of unchanged areas, remove existing grass, vegetation, and turf. Dispose of such material outside of Owner's property; do not turn over into soil being

prepared for lawns.

- G. Grade lawn and grass areas to a smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted within immediate future. Remove trash, debris, stones larger than 1 inch diameter, and other objects that may interfere with planting or maintenance operations.
- H. Tops and bottoms of slopes shall be carefully rounded off in a transition curve. The border of the area of ground disturbed shall be merged with surrounding surface by compacting or other means, to permit water run-off and to present a uniform slope.
- I. Clean and clear all obstructions from drainage structures, ditches, swales, as may be necessary to provide a clean, open, free running passageway for all surface water.
- J. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry off before planting lawns. Do not create muddy soil.
- K. Restore prepared areas to specified condition if eroded or otherwise disturbed after fine grading and before planting.

3.2 SEEDING NEW LAWNS

- A. Apply fertilizer to indicated turf areas at a rate equal to 1 lb. of actual nitrogen per 1000 sq. ft. (220 lbs/acre).
- B. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 3 inches by discing or other approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil. Adjacent to existing trees, the depth shall be adjusted to avoid disturbance of roots.
- C. Sow seed with a spreader or a seeding machine. Do not seed when wind velocity exceeds 5 miles per hour. Distribute seed evenly over entire area by sowing equal quantity in 2 directions at right angles to each other.
 - 1. Do not use wet seed that is moldy or otherwise damaged in transit or storage.
 - 2. Method of Seeding
 - a. Mechanical drills or seeders shall place the seed to a depth not exceeding 1/4". Two passes of seeder shall be made over each area, the second passes being made at right angles to the direction of the first, one-half of the required amount of seed being sown in each pass. Broadcast seed shall be covered to a depth not exceeding 1/4" by raking, brush or chain harrowing, or other approved method. Broadcast seeding shall not be done during windy weather. After sowing, the seeded areas shall be lightly rolled, and watered with fine spray. Rollers for firming the seed bed before and after seeding shall weigh not more than 65 lbs. per ft. of width. Cultipaker or similar equipment may be used in one operation to cover the seed and firm the seed bed after seeding.
- D. Protect seeded areas against erosion by spreading specified lawn mulch after completion of seeding operations. Spread uniformly to form a continuous blanket at least 1 1/2" inches loose measurements over seeded areas. Spread by hand, blower, or other suitable equipment.

E. Mulching

1. Place straw mulch on seeded areas within 24 hours after seeding.
2. Place straw mulch uniformly in a continuous blanket at the rate of 2-1/2 tons per acre, or (2) 50 lb. bales per 1,000 sq. ft. of areas. A mechanical blower may be used for straw mulch application when acceptable to the Landscape Architect.
3. Crimp straw into soil by mechanical means.

- F. Provide straw bale checking in ditches or problem swales at intervals required to adequately slow water velocity and impede soil loss.

3.3 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.

1. Recondition other existing lawn areas where indicated.

- B. Provide fertilizer, seed 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 good, deep planting bed.

- 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.

- 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 chemical weed killers as required. Apply a seedbed mulch, if required, to maintain moist condition.

- F. Water newly planted areas and keep moist until new grass is established.

3.4 PROTECTION

- A. Begin maintenance of lawns immediately after each area is planted and continue for the periods required to establish acceptable lawns, but no less than the following:

1. Seeded lawns, at least 60 days, after date of substantial completion.

- a. If seeded in fall and not given full 60 days of maintenance, or if not considered acceptable at that time, continue maintenance during following spring until acceptable lawn is established.

- B. Maintenance of seeded lawn areas shall include watering, spot weeding, fertilizing, disease and insect pest control, mowing, reseeding, application of herbicides, fungicides, and insecticides until a full uniform stand of grass, free of weeds, undesirable grass species, disease and insects is achieved and accepted by the Landscape Architect.

- C. Remulch when new mulch has been disturbed by wind or maintenance operations sufficiently to nullify its purpose. Anchor as required to prevent displacement.
- D. Replant bare areas with same material specified for lawns.
- E. Contractor to provide water daily or as conditions dictate to maintain adequate surface soil moisture for proper seed germination. Watering shall be done in the late afternoon or early evening hours and shall continue for a period not less than 30 days. Thereafter, apply 1/2" of water twice weekly until acceptance. Water shall be from Owner's source. Contractor shall provide and maintain at his expenses, adequate connections, hoses, sprinklers, etc., with minimum leakage. Where use of hoses is not practical, Contractor shall water with a tank truck filled at Owner's source. Where Owner's water source is not available, Contractor shall include cost of water from off-site source in base bid.
- F. Layout temporary lawn water system and arrange watering schedule to prevent puddling, water erosion, and displacement of seed or mulch (if any). Lay out temporary watering system to avoid necessity of walking over muddy or newly seeded areas.
- G. Mow lawns as soon as there is enough top growth to cut with mower set at specified height for principal species planted. Repeat mowing as required to maintain specified height. Remove no more than 40 percent of grass leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Time initial and subsequent mowings to maintain following grass height:
 - 1. Mow grass from 2" - 2 1/2" high. Do not mow to less than 2". Minimum of 3 mowings prior to acceptance.
 - 2. Pick-up of grass clippings shall be required during or immediately after each mowing, if clippings are an average of 35 mm or longer in length.
- H. Apply weed and feed fertilizer application after first mowing and when grass is dry.
 - 1. Use fertilizer that will provide at least 1 lb. of actual nitrogen per 1000 sq. ft. of lawn area.
- I. Contractor to repair rework and reseed all areas that have washed out, are eroded or do not catch. Restore bare areas by topdressing with topsoil as specified at a depth of 1/4" - 1/2". Apply seed at a rate of 2 lbs. per 1000 sq. ft. Roll with a light roller and cover with 1/2" mulch of pre-moistened peat moss.
- J. Contractor will provide such barricades, temporary fencing, signs or policing as may be necessary to eliminate or minimize damage to lawn. Contractor is responsible for all damage that occurs unless damage is beyond Contractor's control. Should damage occur beyond Contractor's control, Contractor will submit request for change order and provide reasonable proof of damage.

3.6 ACCEPTANCE

- A. When work is substantially completed, including maintenance, Landscape Architect will, upon

written request and 10 days notification, make a site observation to determine acceptability.

- B. Replant rejected work and continue specified maintenance until another site observation is conducted by the Landscape Architect and found to be acceptable.
- C. Upon acceptance, the Owner will assume lawn maintenance.
- D. Seeded lawns will be acceptable provided requirements, including maintenance, have been met and healthy, uniform close stand of specified grass is established free of weeds, bare spots, and surface irregularities.

3.7 CLEAN UP

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto surface of roads, walks or other paved areas.
- B. Perform cleaning during installation of the work and upon completion of the work remove from site all excess materials, debris and equipment and legally dispose of them off owner's property. Repair damage resulting from seeding operations.

END OF SECTION