

**SECTION 029310
ATHLETIC FIELD LAWN HYDROSEEDING AND DRILL SEEDING**

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to this Section.

1.2 SUMMARY

The scope of work includes furnishing all supervision, labor, materials, tools and equipment, and installation incidental to this Section. This Section includes the following, but not necessarily limited to:

- A. Fine grading and preparing the seed/sod bed.
- B. Providing and incorporating amendments necessary for good lawn growth.
- C. Seeding or sodding all proposed lawn areas and disturbed areas not otherwise developed.
- D. Providing and installing erosion control fabric or salt hay mulch as required or specified.
- E. Mowing, watering, and maintaining the lawn until established and accepted.
- F. Treating all lawn areas with crabgrass and broadleaf weed controls as required.
- G. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 2 Section "Screened Topsoil and Topsoil Borrow".
 - 2. Division 2 Section "Planting".

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specifications Sections.
- B. Product certificates signed by manufacturers certifying that their products comply with specified requirements.
 - 1. Manufacturer's certified analysis for standard products.
 - 2. Certifications of grass seed from seed vendor for each grass-seed mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
 - 3. Certification of each seed mixture for sod (if applicable), identifying sod source, including name and telephone number of supplier.

- C. Topsoil test reports in accordance with Division 2 Section 02920, "Topsoil".

1.4 QUALITY ASSURANCE

- A. **Installer Qualifications:** Engage an experienced Installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful landscape establishment who shall be present at all times during execution of this work and who shall direct all work performed under this Section.
- B. **Preventatives and controls:** Prior to the application of the preventatives and controls specified, confirm that each of the materials is permitted in the State of Massachusetts.
- C. **Sod:** Harvest, delivery, store, and handle sod according to the requirements of the American Sod Products Association's (ASPA) "Specifications for Turfgrass Sod Materials and Transplanting/Installing."

1.5 PRODUCT HANDLING

- A. **Packaged Materials:** Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.
- B. **Seed:** Deliver seed in original sealed, labeled, and undamaged containers.

1.6 PROJECT CONDITIONS

- A. **Examine Work:** To receive seeding and notify the Owner of any defects. Specifically review the topsoil placement (depths, grades, and condition). Commencement of this work implies acceptance by Contractor of preparatory work by others.

1.7 COORDINATION AND SCHEDULING

- A. **Construct Lawns:** Between April 15 and June 15 and between August 15 and October 1 unless otherwise permitted by the Owner.

1.8 GUARANTEE

- A. **Duration of Guarantee:** Shall be until the completion of the specified maintenance period and until Owner's final acceptance of Athletic Field lawn areas.

1.9 INSPECTION AND ACCEPTANCE OF SEEDED OR SODDED AREAS

- A. **Submit Written Notice:** requesting inspection at least 10 days prior to the anticipated date.
- B. **Maintenance:** responsibilities end with final acceptance which shall be a minimum of 120 days from the date of substantial completion of seeding. Typically, areas will not be accepted in "pieces" unless specifically agreed to by the Owner.
- C. **A Satisfactory Stand:** of grass which is acceptable is defined as:

1. Consisting of a uniform stand of at least 70% established permanent grass species, with a uniform count of at least 100 plants per square foot. Any part of the lawn that does not show a uniform dense lawn grass shall be reseeded.
- D. Sod must be firmly rooted to the soil, be free of weeds, disease, and insects, and be of good color and uniform density.
- E. Final Acceptance will not be made until all damaged areas, including areas outside the property limits have been restored to their original conditions by topsoiling, seeding, and other necessary operations.
- F. Upon Stabilization of lawn areas remove all erosion control devices, unless otherwise specified, and protection fencing and dispose of off-site.

PART 2 PRODUCTS

2.1 GRASS MATERIALS

A. Seed Mixture:

Provide fresh, clean, new-crop seed complying with the tolerance for purity and germination established by the Office of Seed Analysis of North America. The seed mixture shall have been tested for germination and purity by acceptable methods within a 9 month period prior to delivery. Provide seed of the grass species, proportions and maximum percentages of weed seed as specified. Provide seed in cleaned, sealed, properly labeled containers. Seed that is wet, moldy, or otherwise damaged will not be accepted. Handle seed to manufacturer recommendations for exposure to extremes of heat, cold, or moisture.

B. Lawn Seed Quality

1. Weed Seed: Maximum of 0.50%, no noxious weed seed.
2. Purity: Minimum 97% pure.
3. Crop: Maximum 0.50%
4. Germination Rate: Minimum 85%

2.2 ATHLETIC FIELD LAWN SEED MIX

To be used in all areas indicated as Athletic Field lawn and any disturbed areas not otherwise developed.

Shall be "Jonathangreen Black Beauty Ultra" or approved equal.
Application rate equal to 5 lbs/1,000 SF,

2.3 NO-MOW SEED MIX

To be used in all areas indicated as at areas indicated on the Contract Drawings.

TYPE OF SEED

Blend of 3 to 5 Creeping Red Fescues

2.4 WILDFLOWER & NATIVE GRASS SEED

To be used on areas indicated on the Contract Drawings.

TYPE OF SEED

“Low Growing Prairie for Dry Soils” by Prairie Nurseries (800) 476-9453 or approved equal.

2.5 WETLAND SEEDING MIXTURE (When Indicated on the Contract Drawings)

To be used in or around wetland areas as shown on the Contract Drawings.

<u>TYPE OF SEED</u>	<u>PERCENT BY WEIGHT</u>
Fox Sedge (Carex vulpinoidea)	30%
Fringed Sedge (Carex crinita)	22%
Canada Manna Grass (Glyceria Canadensis)	10%
Chufa (Cyperus esculentus)	10%
Soft Rush (Juncus effuses)	5%
Bearded Sedge (Carex comosa)	4%
Lurid Sedge (Carex lurida)	4%
Woolgrass (Scirpus cyperinus)	3%
Boneset (Eupatorium perfoliatum)	3%
Hop Sedge (Carex lumpulina)	3%
Blue Vervain (Verbena hastate)	2%
Green Bulrush (Scirpus atrovirens)	2%
Joe-Pye Weed (Eupatorium fistulosum)	2%

2.6 SOD (If Shown on the Contract Drawings)

Areas designated shall be sodded with a nursery grown certified blend of Kentucky Bluegrass cultivars as approved by Owner for Landscape Architect. The uniform thickness shall be 3/4" with a tolerance of 1/4"±.

2.7 TEMPORARY SEEDING MIXTURE

To be used in all areas requiring temporary seeding.

<u>TYPE OF SEED</u>	<u>PERCENT BY WEIGHT</u>
Annual Ryegrass	50%
Perennial Ryegrass	50%

Application Rate 4 lbs per 1000 SF

2.8 EROSION CONTROL BLANKETS

A. 3:1 slopes or steeper where indicated on the Contract Drawings:

Erosion Control Blanket shall be North American Green SC 150 or shall be a green, wood fiber mat constructed from 100% Aspen curled fibers with a green photo-degradable netting applied to one side. Erosion Control Blanket to be as manufactured by American Excelsior Company, Arlington, TX, "Quick Grass" or approved equal.

2.9 TOPSOIL

A. As per Division 2, Section 02920, "Topsoil."

2.10 SOIL AMENDMENTS

A. Lime: Natural dolomitic limestone containing not less than 85 percent of total carbonates with a minimum of 30 percent magnesium carbonates, ground so that not less than 90 percent passes a 10-mesh sieve and not less than 50 percent passes a 100-mesh sieve. Apply at the rate of 100 lbs/1,000 S.F.

2.11 CHEMICAL PREVENTIVES AND CONTROLS

- A. General: Commercial materials for agricultural use, manufactured by Scotts, DuPont, or Ortho.
- B. For Crabgrass: Siduron.
- C. For Broadleaf Weeds: bromoxynil.
- D. For Insects and Diseases: Material recommended by the Extension Service or the State Experiment Station.

2.12 FERTILIZER

A. Fertilizer: Provide commercial fertilizer with percentages as follows:

- Nitrogen 10%
 - Phosphoric Acid 6%
 - Potash 4%
- (At least 50% of Nitrogen shall be from Organic sources)

Apply at the rate of 1000 lbs./acre.

2.13 MULCHES

A. Wood Fiber Mulch shall be organic, dust free, shredded bark mulch.

- 1. Free of weeds or other foreign matters that might inhibit growth. Aged 6 months.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive seeding for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 RATES OF APPLICATION

<u>Material</u>	<u>Application Rate</u>
Lime	100 lbs./1000 S.F.
Fertilizer	1000 lbs./acre
Cellulose Pulp Fiber	32 lbs./1,000 S.F.
Crabgrass Preventative	As recommended by the manufacturer.
Lawn Pest/Disease Control	As recommended by the Extension Service or Experiment Station
Soil Insect Control	As recommended by the Extension Service or Experiment Station
Broad Leaf Weed Control	As recommended by the Extension Service or Experiment Station
Athletic Field Lawn	5lbs./1,000 S.F.
No-Mow Seed Mix	4-5 lbs/ 1,000 S.F.

Wildflower & Native Grass Mixture	As per suppliers recommendations
Wetland Seed Mix	1.0 lbs/ 1,000 S.F. as a wet meadow 1.0 lbs/ 2,500 S.F. as an understory
Temporary Seed Mix	4 lbs/ 1,000 S.F.

3.3 TOPSOIL PREPARATION

- A. Loosen topsoil to full depth by scarifying or other disking methods. Obtain a loose friable soil bed to a depth of 4". At no time will rubber tired loaders of graders having a greater compaction than a small farm tractor be allowed on topsoil. Keep all heavy equipment and trucks off prepared topsoil. Do not prepare while ground is frozen or wet. Limit preparation to areas which will be planted promptly after preparation.
- B. Provide additional topsoil as required to properly meet all finished grades.
- C. Remove any weeds, debris, foreign matter and stones having any dimension greater than 1-1/2". Remove from property.
- D. Fine grade to a smooth uniform surface. The entire area shall present an even grade with no depressions where existing water will stand. Any protective fencing around existing trees shall be removed at this time. Topsoil shall be smoothly blended to existing finish grades around trees, erosion control devices and adjacent existing conditions. Maintain existing surface drainage patterns. Round-off all top and toe of slopes. Reinstall erosion control devices and protective fencing as required.
- E. Approval of surface shall be obtained before seeding operations begin. If requested, perform bulk density and compaction readings to monitor degree of soil compaction/seed bed friability.
- F. Apply all lime, fertilizer, and other recommended conditioners at the rates recommended by the topsoil test report or as needed. Mix uniformly into top 1" of the topsoil. Lime and fertilizer may be applied in one step. Keep lime from contacting the roots of acid loving plants.

3.4 LAWN DEVELOPMENT

- A. All disturbed areas not developed otherwise shall be developed as lawn and/or seeded as indicated on the drawings and in these Specifications.
- B. All lawn shall be seeded unless specifically noted to be sodded.

3.5 PREPARATION OF UNCHANGED GRADES (IF APPLICABLE)

- A. 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 planting as follows: Till to a depth of not less than four (4) inches. Apply soil amendments and initial fertilizers as specified. Remove high areas and fill in depressions. Till soil to a homogenous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter.

- B. Prior to preparation of unchanged areas, remove existing grass, vegetation and turf. Dispose of such material outside of Owner's property. Do not turn existing vegetation over into soil being prepared for lawns.
- C. Apply specified commercial fertilizer at rates specified and thoroughly mix into upper two (2) inches of topsoil. Delay application of fertilizer if lawn planting will not follow within a few days.
- D. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.
- E. Restore lawn areas to specified condition, if eroded or otherwise disturbed, after fine grading and prior to planting.

3.6 SEEDING PROCEDURE -HYDROSEEDING

- A. Insure that the soil has been prepared in accordance with Part 3.3 and 3.5 of this Section.
- B. Seeding shall be done when wind does not interfere with uniform distribution of hydroseeding mixture.
- C. Apply fertilizer, seed and maximum 10% of mulch in one operation by the use of an approved spraying machine specifically designed for hydroseed application. Avoid spraying mix on adjacent surfaces, walks, building walls, and curbs. Apply remainder of mulch in a second application.
 - 1. Mix materials with water. Keep in an agitated state so that the materials are uniformly suspended in the water and blended into a homogeneous slurry suitable for hydraulic application.
 - 2. Spraying equipment shall be so designed that when the solutions are sprayed over an area, the mulch shall be equal, in quantity, to those specified in 3.2.
- D. Quick Germinating Species: i.e., annual ryegrass or additional perennial ryegrass shall not be overseeded over lawn mix to accelerate lawn establishment unless specified.
- E. Place Erosion Control Blankets on 3:1 Slopes and steeper and as indicated on the Contract Drawings in accordance with manufacturer's specifications.

3.7 DRILL SEEDING (If Used)

- A. All seed is to be drilled (1/4) inch to one-half (1/2) inch into the soil at 50% of the specified Athletic Field Lawn rate with a mechanical grass drill with depth bands and an agitator in the seed box. Row shall be spaced not more than seven (7) inches apart. The area shall be drilled from 2 directions with at least 45° difference in angle of approach. After seeding all areas shall be cultipacked until a minimum of 65% of the seed is covered or otherwise accepted by the Engineer. The seeding area shall than be Hydroseeded with the remainder of the specified seed.

3.7 RECONDITIONING EXISTING LAWNS

- A. Recondition existing lawn areas damaged by Contractor's operations including storage of materials and equipment and movement of vehicles. Also recondition existing lawn areas where minor regrading is required.
- B. Provide fertilizer, seed, and soil amendments as specified for hydroseeded new lawns, and as required, to provide a satisfactorily reconditioned lawn.
- C. Provide new topsoil, as required, to fill low spots and meet new finish grades.
- D. Cultivate bare and compacted areas thoroughly to provide a satisfactory planting bed.
- E. Remove diseased and 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 loose building materials.
- F. Where substantial lawn remains, but is thin, mow, rake, aerate if compacted, fill low spots, remove humps, and cultivate soil, fertilize, and seed. Remove weeds before seeding, or if extensive, apply selective chemical weed killers as required. Apply a seedbed mulch, if required, to maintain moist condition.
- G. Water newly planted lawn areas and keep moist until new grass is established.

3.8 SODDING LAWN CONSTRUCTION

- A. Insure: that the topsoil has been prepared in accordance with paragraph 3.03 of this Section.
- B. The Prepared Soil: shall be watered within 12-24 hours prior to laying the sod. Sod should not be laid on soil that is dry and powdery.
- C. Sod: shall be laid where indicated on the drawings in straight lines, with lateral joints staggered to promote more uniform growth and strength. Care should be exercised to insure that the sod is not stretched or overlapped and that all joints are butted tight. Provide full pieces of sod along all perimeter edges unless otherwise approved.
- D. On Slopes Steeper: than 5:1, sod shall be laid with long axis of sod pieces parallel to slope contours secured with pegging.
- E. Roll/tamp sodded areas to eliminate air pockets and insure firm contact between sod and prepared soil.

3.9 WATERING, PROTECTING, RESEEDING SEEDED AREAS

- A. Maintain: a moist seed bed at all times. Water seed bed so that the topsoil is wet to a depth of 2". Apply one complete coverage to the seeded area as necessary to insure proper germination conditions.
- B. Protect: all lawn areas with barricades, if necessary, to keep all traffic off the area. Repair all damage to lawn areas including topsoil replacement, at no additional cost to Owner.

- C. Reseed: all areas which have failed to show a uniform stand of grass after the initial plants have appeared. All areas disturbed/prepared for reseeding in spring or summer shall receive crabgrass preventative.

3.10 CRABGRASS CONTROL

- A. General: Treat all lawn areas with crabgrass preventative in conformance with manufacturer's recommendations.
- B. Time: Conform to the manufacturer's recommendations.
- C. Rate: Conform to the manufacturer's recommendations.

3.11 BROADLEAF WEED CONTROL

- A. General: Treat all lawn areas with broadleaf weed control in conformance with the manufacturer's recommendations.
- B. Time: Conform to the manufacturer's recommendations.
- C. Rate: Conform to the manufacturer's recommendations.

3.12 MAINTENANCE OF LAWN AREAS

- A. Period Required: Immediately after installation and shall continue until final acceptance, but in no case less than 120 days after substantial completion and longer as required to establish an acceptable lawn.

If seeded in fall and not given full 120 days of maintenance, or if not considered acceptable at that time, continue maintenance the following spring until acceptable lawn is established.

- B. Scope: All reseeding, replacement of sod, watering, mowing, trimming, weeding, insect or disease control, refertilizing, repair of washouts and other maintenance procedures, such as rolling, regrading, etc. which are necessary to establish a smooth, acceptable lawn, free of eroded or bare areas.
- C. Mowing: shall remove no more that 1/3 of the grass height; maintain at a height of 2-2 1/2". Remove heavy clippings.

3.13 PROJECT CLEAN-UP

- A. Upon completion of all lawn areas, remove all excess soil, debris, and other materials resulting from work operations of this Section. Restore all improvements to original condition. Broom clean all walks/pavements. All clean-up shall be completed at the end of each working day.
- B. Upon stabilization of lawn areas, remove all erosion control devices. Reseed as required.

3.14 CLEAN-UP AND PROTECTION

- A. During landscaping, keep pavements clean and work area in an orderly condition.
- B. Protect landscaping from damage due to landscape operations, operations, by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.

3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off the Owner's property.

END OF SECTION 029310